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GEOGRAPHY & INDUSTRY

The EDISON ELECTRIC INSTITUTE BULLETIN

May 1954

Published Monthly by Edison Electric Institute

EEI Convention Program

Accounting and Sales Forces Hold Annual Conferences

Our Job Is to Serve

Walter H. Sammis

Atomic and Electric Power

E. H. Dixon

Specialty Selling

George E. Whitwell

Hot and Cold

M. E. Skinner

Computed Reserves

George T. Logan

ELECTRICAL RESEARCH STATISTICS
THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

February, 1953-1954

SOURCE AND DISPOSAL OF ENERGY—MONTH OF FEBRUARY

	1954	1953	%
GENERATION* (Net)			
By Fuel Burning Plants	26,647,202,000	24,602,619,000	+ 8.3
By Water Power Plants	8,563,511,000	8,994,503,000	− 4.8
Total Generation	**35,210,713,000**	**33,597,122,000**	**+ 4.8**
Add—Net Imports Over International Boundaries	20,391,000	132,911,000	−84.7
Less—Company Use	125,657,000	127,057,000	− 1.1
Less—Energy Used by Producer	436,033,000	281,098,000	+55.1
Net Energy for Distribution	**34,669,414,000**	**33,321,878,000**	**+ 4.0**
Lost and Unaccounted for	1,556,985,000	2,027,416,000	−23.2
Sales to Ultimate Customers	**33,112,429,000**	**31,294,462,000**	**+ 5.8**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of February 28			
Residential or Domestic	42,108,485	40,856,031	+ 3.1
Rural (Distinct Rural Rates)	1,619,391	1,610,250	+ 0.6
Commercial or Industrial:			
Small Light and Power	5,874,446	5,655,446	+ 3.9
Large Light and Power	270,959	263,366	+ 2.9
Other Customers	160,222	156,847	+ 2.2
Total Ultimate Customers	**50,033,503**	**48,541,940**	**+ 3.1**
KILOWATTHOUR SALES—During Month of February			
Residential or Domestic	9,718,979,000	8,654,601,000	+12.3
Rural (Distinct Rural Rates)	606,296,000	557,740,000	+ 8.7
Commercial or Industrial:			
Small Light and Power	5,901,659,000	5,472,043,000	+ 7.9
Large Light and Power	15,294,014,000	15,071,474,000	+ 1.5
Street and Highway Lighting	352,274,000	327,850,000	+ 7.4
Other Public Authorities	791,944,000	728,518,000	+ 8.7
Railways and Railroads:			
Street and Interurban Railways	223,817,000	247,368,000	− 9.5
Electrified Railroads	174,967,000	191,810,000	− 8.8
Interdepartmental	48,479,000	43,058,000	+12.6
Total to Ultimate Customers	**33,112,429,000**	**31,294,462,000**	**+ 5.8**
Revenue from Ultimate Customers	**$596,954,000**	**$561,924,000**	**+ 6.2**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—For 12 months ended February 28			
Kilowatthours per Customer	2,382	2,198	+ 8.4
Average Annual Bill	$65.03	$60.66	+ 7.2
Revenue per Kilowatthour	2.73¢	2.76¢	− 1.1

* By Courtesy of the Federal Power Commission.

THE EDISON ELECTRIC INSTITUTE BULLETIN is published monthly by the Edison Electric Institute, an association of electric light and power companies in the United States and its territorial possessions. Its affiliate members consist of members of the Canadian Electrical Association.

The objectives of the Edison Electric Institute are:

The advancement in the public service of the art of producing, transmitting, and distributing electricity and the promotion of scientific research in such field.

The ascertainment and making available to the members and the public of factual information, data, and statistics relating to the electric industry.

To aid its operating company members to generate and sell electric energy at the lowest possible price commensurate with safe and adequate service, giving due regard to the interests of consumer, investor, and employee.

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The EDISON ELECTRIC INSTITUTE BULLETIN

May, 1954

Vol. 22 No. 5

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CONVENTIONS AND MEETINGS

1954

MAY

2- 4 Rocky Mountain Electrical League Annual Spring Conference, Shirley Savoy Hotel, Denver, Colo.

3- 4 IES Great Lakes Regional Meeting, Sheraton Cadillac Hotel, Detroit, Mich.

3- 5 EEI Engineering Committees, Edgewater Beach Hotel, Chicago, Ill.
- 3-4 Meter and Service; Prime Movers; Electrical Equipment.
- 4-5 Hydraulic Power; Transmission and Distribution.

3- 5 EEI Purchasing and Stores Committee, Hotel Roosevelt, New York, N. Y.

5- 7 AIEE Northeastern District Meeting, Van Curler Hotel, Schenectady, N. Y.

10-12 Northwest Electric Light and Power Association Business Development Section Meeting, Hotel Boise, Boise, Ida.

11 EEI Commercial Electric Cooking Conference, Sheraton Hotel, Chicago, Ill.

13-14 PUAA Annual Convention, Hotel Statler, Boston, Mass.

13-14 PEA Transmission and Distribution Committee Meeting, Fort Bedford Inn, Bedford, Pa.

17-18 PEA Prime Movers Committee Spring Meeting, Castleton Hotel, New Castle, Pa.

18 IES Northeastern Regional Conference, Hotel Bond, Hartford, Conn.

19-21 Pacific Coast Electrical Association Annual Convention, Hotel Del Coronado, Coronado, Calif.

20-21 Northwest Electric Light and Power Association Accounting and Business Practice Section Meeting, Davenport Hotel, Spokane, Wash.

24-25 PEA Electrical Equipment Committee, Lord Baltimore Hotel, Baltimore, Md.

JUNE

1- 3 EEI ANNUAL CONVENTION, Atlantic City, N. J.

3- 5 Controllers Institute of America Western Conference, Empress Hotel, Victoria, B. C.

14 NARUC Executive Committee, Washington, D. C.

14-19 ASCE Convention, Chalfonte Haddon Hall, Atlantic City, N. J.

17-19 IES Midwestern Regional Meeting, Hotel Jefferson, St. Louis, Mo.

21-25 AIEE Summer and Pacific General Meeting, Biltmore Hotel, Los Angeles, Calif.

1954

24-26 CEA Annual Convention, Murray Bay, Quebec, Que.

27-30 Michigan Electrical Association Annual Convention, Grand Hotel, Mackinac Island, Mich.

JULY

1- 3 EEI Accident Prevention Committee, Mark Hopkins Hotel, San Francisco, Calif.

12-13 EEI Industrial Relations Committee Joint Meeting with Personnel Section of Northwest Electric Light and Power Association, Hotel Multnomah, Portland, Ore.

SEPTEMBER

14-17 EEI-AGA Accounting Division Organization Meeting, Hotel Cleveland, Cleveland, Ohio.

16-18 36th Annual Meeting of Public Utilities Association of Virginias, The Greenbrier, White Sulphur Springs, W. Va.

20-21 EEI Accident Prevention Committee, Benjamin Franklin Hotel, Philadelphia, Pa.

27-29 EEI Industrial Relations Committee, Round-Table Conference, Palmer House, Chicago, Ill.

OCTOBER

4- 5 EEI Prime Movers Committee, DeWitt Clinton Hotel, Albany, N. Y.

6 Area Development Committee Organization Meeting, Hotel Statler, Cleveland, Ohio.

6- 8 Indiana Electric Association Annual Convention, French Lick Springs Hotel, French Lick, Ind.

7- 8 Area Development Workshop, Hotel Statler, Cleveland, Ohio.

10-13 Controllers Institute of America, Annual Meeting, Edgewater Beach Hotel, Chicago, Ill.

11-12 EEI Electrical Equpment Committee, Hotel Statler, Hartford, Conn.

11-13 AGA Convention, Atlantic City, N. J.

18-22 ASCE Annual Convention, Hotel Statler, New York, N. Y.

28-29 PIP Workshop Conference, Chase Park Plaza Hotel, St. Louis, Mo.

NOVEMBER

8-12 NARUC Convention, Chicago, Ill.

29-30 EEI Prime Movers Committee, Astor Hotel, New York City, N. Y.

PUAA Better Copy Contest Award Books Available

THE 1954 annual PUAA Better Copy Contest Award Books, containing the names of the winning companies and reproductions of the winning ads, are now ready for distribution.

The PUAA Better Copy Contest, now in its 30th year, is the oldest national contest in the advertising field. Each year the contest awards are sought by virtually all of the more than 300 companies and advertising agencies holding membership in the association, and the 1954 entries outnumber those of any other year. Contestants this year, it has been announced by Better Copy Contest Chairman R. D. Furber, have turned in ads of excellent, high-grade quality.

The award books, available from Mr. Furber, Director of the Public Information and Advertising Department of Northern States Power Co. (Minn.), are priced at $10.00 for the first copy and $7.50 each for additional copies.

The EDISON ELECTRIC INSTITUTE
BULLETIN

Past Accomplishment and Future Development Themes of Jubilee-Year EEI Convention

THIS year's Annual EEI Convention, to be held in Atlantic City, June 1-3, has far greater significance than the customary planning meeting where electric company executives gather to exchange ideas and cooperate in the solution of industry-wide problems. To be sure, the convention will be dedicated to the future and, on the speakers' platform, there will be nationally known authorities eminently qualified to discuss the subjects assigned them. But the year 1954 gives the meeting particular importance.

The convention is being held in the same city where a similar meeting inaugurated Light's Golden Jubilee in 1929. Yet, in the intervening 25 years, what electrical wonders have been wrought! The number of industry customers has jumped from 24,000,000 to 50,000,000, and the industry's capacity has increased from 30,000,000 kw to almost 100,000,000 kw.

Herein lies the convention's special significance. The convention is one phase of the continual search for better methods of serving the public that has resulted in the electrical progress being celebrated in 1954 by Light's Diamond Jubilee.

The Jubilee is telling a story of what vision and hard work can do to make life easier, more comfortable, and more productive. A story written by many men, it is epitomized by the life and works of Thomas Edison.

Thus, the first general session will pay tribute to the great inventor. In appraising what has been accomplished, and what remains to be done, it will serve as the inspirational basis for the sessions to follow. It will emphasize that electrical progress has only begun.

WALTER H. SAMMIS
President,
Edison Electric Institute

The rest of the sessions will be working sessions devoted to meeting the challenges of today and tomorrow. They will concern developments in sales, engineering, operations, customer relations, area development, finance, power marketing, and atomic energy. Discussing these subjects will be businessmen, scientists, and government officials, whose wide experience will be focused on many of the most important problems and opportunities now confronting industry executives.

General Sessions

All five of the general sessions will be held in the Ballroom of Atlantic City's Convention Hall. Because of the three-day holiday week end preceding the convention, the first general session will begin on Tuesday at 10:00 am. Institute President Walter H. Sammis will preside at this session, at the second session on Tuesday afternoon, and at the fifth session on Thursday morning. Institute Vice President Harold Quinton will preside at the third and fourth sessions on Wednesday morning and afternoon.

Among the speakers at the first three sessions will be Charles E. Wilson, Chairman of Light's Diamond Jubilee Sponsoring Committee; Sherman Knapp, President of The Connecticut Light & Power Co.; E. H. Snyder, Chairman of the EEI Engineering Division General Committee and General Manager of the Electric Department, Public Service Electric and Gas Co.; Stuart Campbell, Partner of Booz, Allen & Hamilton; Walker L. Cisler, President of The Detroit Edison Co. and Chairman of the EEI Electric Power Survey Committee; Henry B. Sargent, President and General Manager of Arizona Public Service Co.; Harry Restofski, Vice President of West Penn Power Co. and Chairman of the EEI Prize Awards Committee; and C. Hamilton Moses, Chairman of the Board of Arkansas Power & Light Co.

At the final two sessions, the speakers will include George M. Gadsby, President and Chairman of Utah Power & Light Co.; David M. Kennedy, Assistant to the Secretary of the Treasury; F. W. Page, Vice President of Tri-Continental Corp.; Grant A. Martell, Vice President of the Investment Department, New York Life Insurance Co.; Robert Driscoll, Partner of Lord, Abbett & Co.; Alvin Schlosser, Vice President of Blyth & Co., Inc.; Jerome K. Kuydendall, Chairman of the Federal Power Commission; Robert LeBaron, Assistant to the Secretary of Defense for

CHARLES E. WILSON
Chairman, Light's Diamond Jubilee Sponsoring Committee

Atomic Energy and Chairman of the Military Liaison Committee to the Atomic Energy Commission; and Dr. John R. Dunning, Dean of Engineering of Columbia University.

First General Session

The first general session, on Tuesday morning, will honor Edison and the achievement and standards of public service his works have inspired. President Sammis will deliver the opening convention address with these truths in mind:

1. The responsibilities of the electric industry have grown proportionately with the country's dependence upon electric power;

2. America's investor-owned light and power companies have set standards of improvement that afford no prospect of relaxation in the years to come in our efforts to serve capably;

3. These companies are willing, able and anxious to meet the challenge of the ever-growing demands for electric service, no matter how substantial;

4. The true interest of the public must be the compass that guides the course of management.

No verbal tribute to Edison could possibly match the eloquent tribute paid him by the present-day "miracles" in all fields of science, engineering, and the useful arts that would have been impossible without an abundant supply of electricity. But as the wonders of electricity have increased, Edison has become more myth than man. Thus, in a special presentation at the first general session, the convention will pay tribute to the man . . . his indomitable will and ingenuity . . . his vision, integrity, and accomplishment that have given us a pattern to follow in the years ahead.

Charles E. Wilson, Chairman of Light's Diamond Jubilee Sponsoring Committee, will conclude the session with an address on "The Meaning of Light's Diamond Jubilee." In celebrating 75 years that have transformed civilization, the industry has an unprecedented opportunity to bring an inspiring message to the people of this nation. But if the Jubilee is to have its fullest spiritual and material benefit, we ourselves must take this message to heart, so that we may build the future with renewed vigor and faith.

E. H. SNYDER
Chairman, EEI Engineering Division General Committee

Second General Session

Several phases of the present atmosphere for industry development will be discussed at the second general session, on Tuesday afternoon. "Selling for the Future Load" will be the subject of the first speaker, Sherman Knapp, President of The Connecticut Light & Power Co.

Mr. Knapp believes that all-out sales effort does more than increase revenue. It makes friends. A good customer well-sold on the benefits of electric service is one who will probably defend private enterprise. There is a good possibility that he is a stockholder or that he will become one. Few high-bill complaints, Mr. Knapp points out, stem from high-use customers.

Progressive engineering, coupled with better utilization of system facilities, has been the foundation of the electric industry's unique rate history. To build for future loads in such fashion as to realize still further economies, continuous re-examination of practices and the constant exercise of ingenuity and boldness in engineering are mandatory. In an address, "Power System Engineering Faces a New Challenge," E. H. Snyder, Chairman of the EEI Engineering Division General Committee and General Manager of the Electric Department, Public Service Electric and Gas Co., will speak of the opportunities, problems, and responsibilities presently engaging the industry's engineers.

"Facing Up to the Cost Problem" will be discussed by Stuart Campbell, Partner of Booz, Allen & Hamilton.

SHERMAN KNAPP
President, The Connecticut Light & Power Co.

STUART CAMPBELL
Partner, Booz, Allen & Hamilton

About the Speakers:

Stuart M. Campbell, Partner, Booz, Allen & Hamilton, a management consulting firm, is primarily a consultant in the field of top organization and administration. A native of Chicago, Ill., and a graduate of Northwestern University, he was for many years a partner in Arthur Andersen & Co. In 1941 he joined Pittsburgh Plate Glass Co., serving as controller until 1944 when he left to join Booz, Allen & Hamilton.

Walker L. Cisler, President of The Detroit Edison Co., joined the company as chief engineer of power plants after resigning from Public Service Electric and Gas Co. in 1943. He had served the latter company since his graduation from Cornell University in 1922. In World War II he served with WPB and OWU. Later, as a U. S. Army colonel, he directed the rehabilitation of utilities in the Mediterranean theatre and Germany. In 1945 he returned to Detroit Edison, being named executive vice president in 1948 and president, general manager, and director in 1951. Mr. Cisler is a member of the Institute's Executive Committee and Board of Directors and is chairman of its Electric Power Survey Committee. He is also a fellow of AIEE, chairman of the ASME Nuclear Energy Application Committee and the Board of Public Affairs. Chief consultant on electric power to ECA and its successors since 1948, he has served as consultant to the Army, State Department, and AEC.

Robert S. Driscoll, Partner, Lord, Abbett & Co., and Vice President and Director, Affiliated Fund, Inc., and American Business Shares, Inc., is a 1933 graduate of Columbia College with a B.A. degree. Prior to his association with Lord, Abbett & Co., Mr. Driscoll was an investment counselor for seven years. He is a member of the Broad Street Club of New York City, president of the Fencers Club, Inc., and was the 1943 National Epee Champion.

John R. Dunning, Professor of Physics and Dean of the Faculty of Engineering at Columbia University, graduated from Nebraska Wesleyan University with a B.A. degree in 1929. In 1934 he received his Ph.D. from Columbia and started teaching there in 1935. Long a scientist in atomic energy work, he participated in the first neutron experiments in the U. S. in 1932, directed development of the first Columbia University cyclotron in 1936, and was the first to demonstrate uranium fission in 1939. For his efforts in this field he received a Presidential Citation, the Medal for Merit, in 1946, the year in which he was a special representative to "Operation Crossroads" at Bikini. Dr. Dunning, a member of the ASME Nuclear Energy Application Committee and many scientific and technical organizations, has authored and collaborated on books and numerous scientific and technical articles.

George M. Gadsby, President and Chairman of Utah Power & Light Co., was President of the Institute for the year 1951-52. A native Ohioan, he received an M.A. degree from Marietta College in 1907 and a B.S. degree from M.I.T. in 1909. After service with the Warren Water Co., he joined West Penn Power Co. in 1918, becoming president and general manager nine years later. He joined the Electric Bond and Share Co. in 1929 and went to its subsidiary, Utah Power & Light, as chief executive. In 1944 he directed UP&L's reorganization and recapitalization activities and in 1953 handled its expansion program, increasing generating capacity 85 per cent. Long active in civic and cultural affairs, Mr. Gadsby has been president of PEA and Northwest Electric Light and Power Association, director of NAM and NAEC, an active participant in ECAP and PIP, and a member of the Electric Utility Defense Advisory Council in the Department of the Interior. He presently serves on the EEI Board of Directors.

David M. Kennedy, Assistant to the Secretary of the Treasury, is a native of Utah. He received his A.B. and LL.B. degrees in 1935 and 1937 from George Washington University. From 1937 to 1939 he attended the Graduate School of Banking at Rutgers University and holds an M.A. degree from Weber College. Mr. Kennedy served the Board of Governors of the Federal Reserve System in a number of capacities from 1930 to 1946, including technical assistant in the Division of Bank Operations, assistant chief for research in government finance in the Division of Research and Statistics, and special assistant to the chairman. In 1946 he joined the Continental Illinois National Bank and Trust Co., serving as vice president in the Bond Department until being named to his present post. Mr. Kennedy, lecturer and faculty member of several universities, is active in civic and social affairs and is a member of the American Statistical Association and the American Economic Association.

Sherman R. Knapp, President and Director of The Connecticut Light & Power Co., has been with that company since graduating from Cornell University with an engineering degree in 1928. He served as an engineer in the Operating and Sales Departments, a district manager, assistant to the sales vice president, assistant to the president, and executive vice president until being elected president of the company in 1952. A past president of the New England Gas Association, Mr. Knapp is a director of the Hartford Steam Boiler Inspection and Insurance Co., the Hartford Fire Insurance Co., the Manufacturers Association of Connecticut, Inc., and is a trustee of the Hartford-Connecticut Trust Co.

Jerome K. Kuykendall, Chairman of the Federal Power Commission, is a 1932 law school graduate of the University of Washington. Following graduation he practiced law in Seattle, Wash., until 1941, when he was appointed assistant attorney general of the State of Washington. After serving as a naval lieutenant during World War II he returned to his pre-war duties in 1946, resigning to enter private law practice later that year. Early in 1951 he was appointed to the Washington Public Service Commission, becoming chairman of it in the fall of 1951. In 1953, following his nomination by the President, Mr. Kuykendall was made a member of the FPC, later becoming chairman. He is also a member of the Executive Committee of the NARUC.

Robert LeBaron, Assistant to the Secretary of Defense for Atomic Energy and Chairman, Military Liaison Committee to the Atomic Energy Commission, received his B.A. degree from Union College in 1913, his M.S. degree from Princeton in 1917, and studied at the Sorbonne in Paris in 1919. A lieutenant in France during World War I, he later served as an American delegation staff member at the Versailles Conference. Returning to the U. S., he began a long association with many companies in the petroleum, distillery, and chemical processing fields in various capacities, including vice president, sales director, research director, and technical consultant. Following Pearl Harbor, he served as a consultant on chemicals for WPB. More recently he was a consultant to Standard Oil Co. of California, while following other chemical interests in the East. Holder of patents relating to recovery of alcohol from petroleum compounds, Mr. LeBaron has coordinated all atomic energy, scientific, and technical activities between the Department of Defense and the AEC since 1949.

About the Speakers:

Grant A. Martell, Second Vice President of the Investment Department, New York Life Insurance Co., graduated from the University of Florida in 1924 and received his M.B.A. degree from New York University in 1936. That same year, having had a varied career in real estate and trust company work in Florida and security and investment advisory work in New York, he joined New York Life Insurance Co.'s Investment Department as public utility security analyst. Following a tour of duty in the South Pacific during World War II as a naval reserve lieutenant, he returned to New York Life, where in 1953 he assumed his present position with the primary duty of directing the company's activities involving investments in the public utility field.

C. Hamilton Moses, Chairman of the Board, Arkansas Power & Light Co., graduated from Ouachita College in 1909. Receiving his M.A. from Tulane University in 1910 and LL.B. from Arkansas Law School in 1911, he was admitted to the Bar in 1913. He served as secretary to three governors until 1919 and also was assistant attorney general from 1915 to 1917. In 1919 he became attorney for the Corporation Commission and general counsel for Arkansas Power & Light. Seven years later he formed a law partnership and played an important role in building several electric companies and railroads. In 1941 he was elected president and chairman of the board of Arkansas Power & Light. In 1944 he became first president of the Arkansas Economic Council-State Chamber of Commerce, which he helped form and in which he still holds office. Mr. Moses is also a director of Terminal Warehouse Co. and NAM and is chairman of the board of American Radio and Television, Inc. He has been civilian aide to the Secretary of the Army since 1951 and is a member of the Committee for Economic Development, Washington, D. C. Active in fraternal and religious work and professional societies, he has received many honorary distinctions, including two Doctor of Laws degrees.

Frederick W. Page, Vice President of Tri-Continental Corp., graduated from Dartmouth College in 1930 and received his M.B.A. degree from Harvard Business School in 1932. A year later he joined Tri-Continental, an investment firm, as public utility analyst. In 1942 he was made head of the Public Utility Department, the position he held until being named vice president in 1948. A former director of Atlantic City Electric Co. and Pennsylvania Water Co., Mr. Page is vice president of Broad Street Investing and National Investors, director of Brooklyn Union Gas Co., and trustee of Irving Savings Bank. In Glen Ridge, N. J., where he resides, he is a member of the Town Council and the Board of Elections, and is a trustee of the Public Health Nursing Association.

Harry Restofski is Vice President of West Penn Power Co. Since joining the company in 1914, following graduation from Ohio Northern University, he has filled many positions. Prior to becoming executive in charge of rates, sales, advertising, and public relations, his present position, Mr. Restofski served as general safety director, assistant to the president, training director, personnel director, sales promotion manager, and general sales manager. Presently chairman of the EEI Prize Awards Committee, he is past chairman of its Commercial Division General Committee and of the Better Light Better Sight Bureau. Mr. Restofski is also a member of PEA, AEIC, IES, and the Electric League of Western Pennsylvania.

Henry B. Sargent is President and General Manager of Arizona Public Service Co. He has served the electric industry since 1927, when he joined Mississippi Power & Light Co. as engineer and office manager after graduating with a B.S. degree from Tulane University. After holding various positions with the company, he became vice president in charge of operations in 1937 and vice president and general manager in 1944. He left Mississippi Power & Light in 1946 to accept the executive vice presidency of Central Arizona Light & Power Co., being named president later that year. In 1949 he assumed the additional duties of general manager. When Arizona Edison Co., Inc., and Central Arizona Light merged in 1952 to form Arizona Public Service, Mr. Sargent continued as president of the new company. Active in many civic and social clubs, he is a director of the Institute and the First National Bank of Arizona, vice president and director of the Pacific Coast Electrical Association, and a member of AIEE.

Alvin J. Schlosser is a Vice President of Blyth & Co., Inc., and has been in the Investment banking business for the past 23 years. He received his education at New York University and a New Jersey Law School. Before joining Blyth & Co., Inc., more than ten years ago he was employed by several firms, including Western Electric Co., Industrial Finance Corp., and Halsey, Stuart & Co., Inc. Mr. Schlosser became a vice president of Blyth & Co., Inc., in 1947.

Edwin H. Snyder, General Manager of the Electric Department, Public Service Electric and Gas Co., is a native of Washington, D. C. Immediately after his graduation from Lehigh University in 1923, he joined Public Service as a cadet engineer. In 1937 he was transferred from the Electric Distribution Department to the Electric Engineering Department, where he served successively as assistant to the chief engineer and assistant chief engineer before being appointed to his present position in 1950. In addition to membership in the AIEE and ASME, Mr. Snyder is active in EEI committee work. He has been a member of the Electrical Equipment Committee and the Engineering Division General Committee, which he now serves as chairman.

Charles E. Wilson, former President of General Electric Co. and Director of the Office of Defense Mobilization, is presently Chairman of the Executive Committee of the Board of Directors of W. R. Grace & Co. and Chairman of Light's Diamond Jubilee Sponsoring Committee. Except for wartime government service, he has spent almost his entire career in the electrical industry, starting as an office boy with Sprague Electric Co. at the age of 12. Sprague Electric became part of General Electric in 1903, and he advanced from position to position until being elected president in 1940. In 1942 he was appointed vice chairman of WPB, later being made executive vice chairman in charge of all war production. In 1944 he returned to G.E. as president and director but continued with government work. Six years later he resigned from the company when President Truman appointed him director of the Office of Defense Mobilization, a post he held until he resigned in 1952. Through the years Mr. Wilson has devoted his efforts to many activities, and he now serves as president of Edison Pioneers. He has received numerous outstanding awards and holds honorary degrees from 19 universities and colleges.

WALKER L. CISLER
Chairman, EEI Electric Power Survey Committee

HENRY B. SARGENT
President and General Manager, Arizona Public Service Co.

HARRY RESTOFSKI
Chairman, EEI Prize Awards Committee

Mr. Campbell is of the opinion that the impact of rising costs on profits will not be offset indefinitely by higher rates. He believes that maintaining a proper balance among rates, service, and costs requires a re-examination of service standards and an aggressive attack on operating methods and costs.

Third General Session

Looking ahead, the theme of the third general session, on Wednesday morning, will be expressed in the address of the first speaker, Walker L. Cisler, President of The Detroit Edison Co. and Chairman of the EEI Electric Power Survey Committee.

In an address entitled "Looking Ahead to the Last Quarter of the First Century of Electric Power in the United States," Mr. Cisler will be concerned with the opportunities for further service and the growth to be expected between now and the Centennial of Light, only 25 years away. For months the Electric Power Survey Committee, under Mr. Cisler's direction, has been collecting data on these subjects, upon which he will base his presentation.

"Customer Relations" will be the subject of Henry B. Sargent, President and General Manager of Arizona Public Service Co. Mr. Sargent will discuss what he considers the five main ingredients of good customer relations: a sound utility philosophy, an efficient operation, a program of public information, faith, and willingness to work.

The presentation of the Claude L. Matthews Valor Award and the Reddy Kilowatt Annual Report Award by EEI Prize Awards Committee Chairman Harry Restofski will follow.

C. Hamilton Moses, Chairman of the Board of Arkansas Power & Light Co., will report on "People Organized and in Action." Arkansas is undergoing rapid industrial development. Its cities and towns are busy erecting public buildings, paving streets, constructing playgrounds and youth centers. Its citizens are organized and in action. This activity is due in no small measure to the community development program inspired by Arkansas Power & Light. Concluding the session, Mr. Moses will describe the elements of this program and point out how they can be applied to other service areas.

Fourth General Session

George M. Gadsby, President and Chairman of Utah Power & Light Co., will be first speaker at the fourth general session, devoted to power marketing and finance. His subject will be "The Preference Clause—Santa Clause to the Favored Few but Paid for by the Nation."

About 80 per cent of individual taxpayers and citizens, according to Mr. Gadsby, are being unfairly discriminated against through interpretations put upon the preference clause in recent legislation by pro-public-power administrators. Taxes paid by all the people are used to build Federal power projects. But the benefits are limited to about one-fifth of the electric power users of the nation. Clearing away

C. HAMILTON MOSES
Chairman of the Board, Arkansas Power & Light Co.

GEORGE M. GADSBY
President and Chairman, Utah Power & Light Co.

DAVID M. KENNEDY
Assistant to the Secretary of the Treasury

FREDERICK W. PAGE
Vice President, Tri-Continental Corp.

GRANT A. MARTELL
Vice President, Investment Department, New York Life Insurance Co.

some intentionally created misunderstandings and arbitrary rulings will restore justice and fair play to all in the traditionally American way.

"Treasury Financing and Debt Management" will be the subject of David M. Kennedy, Assistant to the Secretary of the Treasury.

Mr. Kennedy believes that a sound dollar is the cornerstone of Administration financial policy. The objective is to manage the large public debt so as to contribute neither to inflation nor deflation but to stability. Government expenditures are being cut and savings passed on to individuals and business. Taxes have been reduced $6,000,000,000 so far this year, and the Administration's tax revision bill, passed by the House and being considered by the Senate, will bring additional tax reductions of about $1,500,000,000.

A panel, with F. W. Page, Vice President of Tri-Continental Corp., as moderator, will give "An Appraisal of the Market for Long-Term Capital." Composed of two institutional investors and an investment banker, the panel will have as its members Grant A. Martell, Vice President of the Investment Department, New York Life Insurance Co.; Robert Driscoll, Partner of Lord, Abbett & Co.; and Alvin Schlosser, Vice President of Blyth & Co., Inc. After discussing the outlook for the bond and stock markets, the panel will participate in a question and answer period.

Fifth General Session

Devoted to regulation and atomic energy, the fifth general session will open with an address on "Rate and Securities Regulation by the Federal Power Commission" by Jerome K. Kuykendall, Chairman of the Federal Power Commission. In Mr. Kuykendall's opinion both company and customer are best served by rates that provide the seller with adequate income and enable the buyer to obtain satisfactory service at reasonable cost. If the regulatory commission succeeds in achieving this objective, the prospect of private ownership is enhanced and the public interest is truly protected.

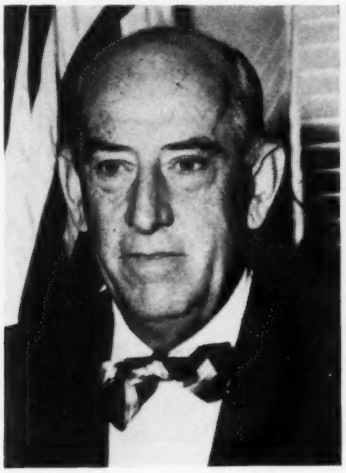
A "Report on Progress—Atomic Energy" will be given by Robert LeBaron, Assistant to the Secretary of Defense for Atomic Energy and Chairman of the Military Liaison Committee to the Atomic Energy Committee. National defense dictated that the first development of atomic energy had to be undertaken by government for military purposes. Since World War II, and within the limitations imposed by the Atomic Energy Act of 1946, industrial groups have become increasingly active in nuclear research. Mr. LeBaron will discuss the present-day interrelations between the military program and the potential development of civilian atomic power.

Concluding the session, Dr. John R. Dunning, Dean of Engineering of Columbia University, will discuss the "Prospects for Use of Atomic Energy in Generation of Electric Power." Technically practical power genera-

ROBERT DRISCOLL
Partner, Lord, Abbett & Co.

ALVIN SCHLOSSER
Vice President, Blyth & Co., Inc.

JEROME K. KUYKENDALL
Chairman,
Federal Power Commission



ROBERT LEBARON
Assistant to the Secretary
of Defense for Atomic Energy

DR. JOHN R. DUNNING
Dean of Engineering,
Columbia University

tion from atomic energy has been demonstrated, and net gain breeding has been proven. But exploration of all possibilities, all types of engineering and technical designs, must continue. Dr. Dunning will give his opinion on whether or not prospects for economic generation of electric power give grounds for optimism.

Convention Particulars

Convention registration will begin on Monday at 11:00 a.m. in the lobby of Hotel Traymore. Delegates and guests are urged to register as soon as possible upon arrival in Atlantic City. There will be a registration fee of $10.00, which will cover attendance at all business sessions and social functions and include members of the family accompanying the registrant. The registration schedule is as follows:

Monday, May 31—11:00 a.m. to 7:00 p.m., lobby of Hotel Traymore.

Tuesday, June 1—8:00 a.m. to10:00 a.m., lobby of Hotel Traymore; 8:30 a.m. to 5:00 p.m., Convention Hall entrance.

Wednesday, June 2—8:30 a.m. to 5:00 p.m., Convention Hall entrance.

Thursday, June 3—8:30 a.m. to 12 noon, Convention Hall entrance.

Admission to all meetings and functions will be by convention badges for the gentlemen and pins for the ladies, obtainable only upon registration. In addition to pins and badges, tickets, also obtained upon registration, will be required for admission to social events.

Convention attendance is expected to be large, and it is suggested that hotel accommodations be obtained as soon as possible. Because of the Memorial Day week-end crowds, it is particularly important that delegates and guests have definite confirmation of their reservations before arrival in Atlantic City. If reservations have not yet been secured, immediate application, specifying the exact time of arrival, should be made to M. H. Yarnall, Housing Bureau, 16 Central Pier, Atlantic City, N. J.

The convention will again have its own daily newspaper published through the courtesy of *Electrical World*. It will appear on Tuesday and Wednesday. Official notices, reports on the general sessions, and a roster of convention registrants will be featured in it.

Schedule of Recreation Events

Tuesday, June 1

5:00 p.m. to 7:00 p.m.—President's Cocktail Party. Vernon Room, Garden Court, and Solarium, Hotel Haddon Hall. Dancing to follow.

Wednesday, June 2

12 noon—Ladies' Luncheon, Trimble Hall, Claridge Hotel, Edison Electric Institute host. Schiaparelli, Inc., will present a fashion show, and Cornelia Otis Skinner will be guest speaker.

8:45 p.m. — Presentation of the Charles A. Coffin Award, Warner Theatre on the Boardwalk.

9:00 p.m.—Entertainment by Victor Borge, Percy Faith conducting the Robin Hood Dell Orchestra, and Betty Furness, presented through courtesy of Westinghouse Electric Corp., at the Warner Theatre on the Boardwalk.

Light's Diamond Jubilee and Atlantic City's Centennial are both being observed throughout 1954. The centennial celebration has a Jubilee theme and will be concentrated in the 100 days following start of the convention.

The city will be festive with Jubilee lighting. Old Absecon Light will be illuminated after dark, and large replicas of the lighthouse will greet visitors along the major approaches to the city. Small models of the historic light have also been mounted on the standards of the new fluorescent mercury vapor lamps recently installed on the boardwalk.

The start of the convention will also mark the official opening of the new Garden Pier, recently rebuilt as a civic center with solariums, landscaped promenades, and an amphitheatre. There will be nightly concerts in the amphitheatre, followed by brilliant firework displays. At the ocean end of the pier will be a spectacular fountain synchronizing light and music.

Atlantic City's temperate climate and picturesque shore should provide a delightful setting for the meeting. While the convention's general sessions will deal with the great opportunities ahead, the city's Jubilee lighting will emphasize the electrical progress made in the past.

Institute Convention Entertainment to Feature Noted Theatrical and Musical Personalities

ENTERTAINMENT at the 22nd Annual EEI Convention, to be held in Atlantic City, June 1-3, will feature Victor Borge, Percy Faith, Betty Furness, and Cornelia Otis Skinner.

At 8:45 p. m. on Wednesday, June 2, a special program will be presented at the Warner Theatre on the Boardwalk. It will begin with presentation of the Charles A. Coffin Award to the electric company contributing most "to the development of electric light and power for the convenience of the public and the benefit of the industry." The electric industry's most coveted honor, the award will be made by Philip Reed, Chairman of the Board, General Electric Co. Parts of the presentation will be broadcast by CBS.

Following the ceremony, Westinghouse Electric Corp. will present a musical program starring Victor Borge with Percy Faith conducting the Robin Hood Dell orchestra. Betty Furness will be emcee.

In his current Broadway show, Victor Borge has eclipsed every record for one-man performances in New York theatrical history. Yet in 1940, when he came to this country from his native Denmark, he was unknown to most Americans. In Europe he was famed as a concert pianist and humorist, having starred in a dozen Danish films. So he headed for Hollywood. But his career stood still until he became Bing Crosby's guest comedian on radio for 56 weeks. From that point on he added one triumph to another in radio, television, and hotel engagements. Despite his success as a humorist, his first love is serious music. He still concertizes and sometimes appears in the dual role of conductor and soloist.

Called "the Philadelphia Orchestra in summer dress," the Robin Hood Dell Orchestra is staffed largely by members of the Philadelphia group. Its guest conductor, Percy Faith, is a native of Toronto. After serving as staff arranger and conductor for the Canadian Broadcasting Co., he came to this country in 1940 as conductor of the "Carnation Contented Hour." For a number of years he was conductor of "The Pause that Refreshes on the Air" and has frequently been guest conductor of the Ford and NBC Symphony Orchestras. He has made many best-selling records and is Musical Director of the Popular Division of Columbia Records.

Betty Furness is a versatile actress with several Broadway successes and 35 motion pictures to her credit. In recent years she has established herself as an outstanding radio and television personality in such shows as "Studio One," "Leave It to the Girls," "Penthouse Party," and "Meet Betty Furness."

At Wednesday noon, June 2, the Institute will welcome the ladies to a luncheon in Trimble Hall of the Claridge Hotel. Schiaparelli, Inc., will present a fashion show, and Cornelia Otis Skinner will be guest speaker.

Miss Skinner is a true daughter of the theatre. Her mother was the gifted Maud Durbin and her father one of the most beloved actors of the American stage. Educated at the Baldwin School and Bryn Mawr, she left college to study drama in Paris. Upon returning to this country, she made her professional debut with her father in 'Blood and Sand." After appearing in several other plays, she wrote the first of her famous character sketches, the latest of which was "Paris '90." While remaining active in the theatre, she has written many books, including the best-selling *Family Circle* and *Our Hearts Were Young and Gay*, which was authored with Emily Kimbrough. She has also appeared frequently on radio and television.

14th Annual Young Men's Utility Conference Sponsored by Indiana Electric Association

THE 14th Annual Young Men's Utility Conference, sponsored by the Indiana Electric Association and designed to develop leaders for Indiana utilities, met at the Gary Hotel, Gary, Ind., on April 5-6 with an attendance of approximately 250 men from six Indiana firms.

With Verlin Warnock of Indiana & Michigan Electric Co. presiding, the first session on Monday afternoon, April 5, started with an address by Indiana Electric Association Vice President Dean H. Mitchell, President of Northern Indiana Public Service Co. Following Mr. Mitchell, C. V. Sorenson, Vice President and General Manager, Indiana & Michigan Electric Co., delivered a talk on "Meeting Competition." Mr. Sorenson, former president of Indiana Electric Association, is a member of the EEI Board of Directors.

Following a panel discussion by the Rates-Statistics Committee of the association on electric rate fundamentals, W. F. Wiedemann, representing Illinois Bell Telephone Co., presented a scientific demonstration called "Microwave Magic."

The host company, Northern Indiana Public Service Co., sponsored a hospitality hour on Monday at 5:30 p. m. A banquet followed and featured as speaker the Hon. Peter Mandich, Mayor of Gary, Ind., who welcomed conference registrants to Gary.

George Ransford of Indianapolis Power & Light Co. presided over the Tuesday morning session. The first speaker, C. E. Borders, Director of Area Development and Marketing, Indianapolis Power & Light Co., spoke on "The Other Investment." E. G. Williams, Assistant Professor in the Department of Management at Indiana University, discussed "The Executive and How He Develops." Prof. Williams is a management expert and business consultant in organizational planning and personnel relations.

Ashton B. Collins, President of Reddy Kilowatt, Inc., spoke on "A Youthful Outlook in the Electric Industry." Following Mr. Collins, two General Electric Co. engineers, Ben Avery and Ralph Crockett, presented a lighting show.

The principal speaker at a luncheon Tuesday afternoon was Dr. O. P. Kretzmann, President of Valparaiso University. A prominent educator, clergyman, and author, Dr. Kretzmann is active in public affairs and is a member of numerous educational organizations and commissions.

The six companies represented at the conference included Public Service Co. of Indiana, Inc., Southern Indiana Gas and Electric Co., Indiana & Michigan Electric Co., Indianapolis Power & Light Co., Mooresville Public Service Co., and Northern Indiana Public Service Co.

Speaking at the general session is Martin R. Gainsbrugh of the National Industrial Conference Board. Shown left to right are Col. H. S. Bennion, EEI Managing Director; W. D. Virtue, Public Service Co. of Colorado, Chairman, EEI Accounting Division Executive Committee; Mr. Gainsbrugh; Paul Ewers, Michigan Consolidated Gas Co., Chairman, AGA Accounting Section Managing Committee; AGA President E. H. Eacker, Boston Consolidated Gas Co.; Beach J. McMillen, The Cincinnati Gas & Electric Co.; and Dr. Kenneth McFarland, General Motors Corp.

Over 1000 Accountants Attend First EEI-AGA Conference to be Held in Boston

THE National Conference of Electric and Gas Utility Accountants, sponsored annually by the Accounting Division of the Edison Electric Institute and the Accounting Section of the American Gas Association, held its first Boston, Mass., meeting at the Hotel Statler on April 12-14. Over 1000 registrants were present.

William D. Virtue, Public Service Co. of Colorado, Chairman of the EEI Accounting Division Executive Committee, and Paul E. Ewers, Michigan Consolidated Gas Co., Chairman of the AGA Accounting Section Managing Committee, presided over the general session which opened the conference on Monday afternoon, April 12. Thomas G. Dignan, President of Boston Edison Co., AGA President E. H. Eacker, President of Boston Consolidated Gas Co., and Col. H. S. Bennion, Institute Vice President and Managing Director, welcomed the delegates on behalf of both host companies, AGA, and the Institute. Col. Bennion discussed the meaning of this year's celebration of Light's Diamond Jubilee.

At the general session, Martin R. Gainsbrugh, Chief Economist of the National Industrial Conference Board, said that on the basis of weekly indications in March and early April, it is at least possible to argue that the steady decline in business operating rates since mid-1953 has begun to taper off and that "stability" has become as accurate a description of business conditions as "decline." However, Mr. Gainsbrugh said, "there remains a good case for caution about late 1954."

Element of Economic Strength

One of the favorable elements of strength in our economy, Mr. Gainsbrugh continued, is the expansionary implications that flow from reducing the oppressively burdensome cost of government, with an accompanying tax reduction. He stated that far more leverage can now be exerted upon the economy through tax reductions than could be done in the past because taxes currently are levied so heavily upon the nation. Tax relief, he said, could lessen the cost of consumer goods, release money for new investment, and increase productivity.

Beach J. McMillen, The Cincinnati Gas & Electric Co., presented details of a course in customer relations recently completed by the project committee he heads. The course consists of a training manual, sound-slide films, and employee follow-up booklets, he said, and is a training tool of great value. Mr. McMillen used a composite sound-slide film illustrating sections of the course relating to principles of good customer relations, office and field contacts, telephone interviews, and correspondence to point out the variety of topics covered.

Dr. Kenneth McFarland, Educational Consultant for General Motors Corp., spoke on the importance of human relations in industry. He emphasized that the great need of our time is for organized information. Our people are well-informed and have access to much information, he said, but they need help from all possible sources to organize their facts into a philosophy of life. Dr. McFarland indicated that to develop in the difficult years ahead we must be people with big personalities. Big people, he said, are gracious and take time to be human.

On Tuesday, April 13, a combined session of the Customer Accounting, Customer Collections, and Customer Relations Committees was held in the

Pictured at the Customer Collections Luncheon are (left to right) L. J. Rauh, Consolidated Gas Electric Light and Power Co. of Baltimore; L. J. Hamilton, Consumers Power Co.; F. J. Maguire, Boston Consolidated Gas Co.; E. S. Boardman, Federal Reserve Bank of Boston; F. L. Mullett. Boston Consolidated Gas Co.; T. C. Eickmeyer, The Dayton Power and Light Co.; and A. H. Mayer, Consolidated Edison Co. of New York, Inc.

morning, after which the group separated for individual committee luncheons and afternoon meetings. Also on Tuesday the General Accounting, Depreciation Accounting, and Taxation Accounting Committees joined for a General Activities meeting in the morning, holding separate committee meetings in the afternoon.

Such current topics as the importance of merchandise credit, close cooperation between customer relations and customer accounting people, and the indoctrination of new supervisors were covered. Trends in income tax legislation and administration, accounting problems of accelerated depreciation, management's evaluation of internal auditing, functions of the plant accounting and property records departments, use of engineers in plant accounting and property records work, and plant accounting and property records manuals were also considered.

The luncheon and afternoon sessions included thorough discussions of the practicability of field supervision of meter readers; special reports accumulated and prepared by customer accounting departments; receipt, distribution, and posting of cash payments; measuring performance and controlling customer accounting costs; and minimum requirements for controlling meters and maintaining customer count.

Many Topics Discussed

Other presentations dealt with the experience of a company on close collection follow-up of current accounts; thoughts on collection practices and policies with a view toward comparative costs; selection, training, and promotion of customer relations employees and methods of reassigning them to meet peak situations; causes of inquiries and complaints in connection with customer relations; depreciation on construction work in progress actually in service; court and commission rulings in 1953 on depreciation; and significance of computed depreciation reserve.

Discussions of general accounting subjects concerned accounting for material and supplies; what is included in the rate base with respect to working capital; effectiveness of a forms control program; preparation of separate labor budgets; the extent to which labor costs are estimated in preparing operating and construction budgets; and possibilities of controlling labor costs by having department heads take responsibility for variations between actual and estimated labor costs. The general accounting program was concluded with talks on reports to stockholders, an analysis of some 1953 annual reports, financial reports to directors and top management, and significant accounting changes in the proposed new uniform system of accounts.

Several guest speakers presented their views on some of the major concerns of today's accountants. At the General Activities session on Tuesday morning, April 13, Dr. Paul W. McCracken, University of Michigan, dis-

W. J. Foster, Jr. (standing), New York State Electric and Gas Corp., presides over the Depreciation Accounting session. Shown left to right are C. N. Rice, Jr., Northern States Power Co. (Minn.); A. G. Maihofer, The Detroit Edison Co.; P. K. Read, New York State Electric and Gas Corp.; Mr. Foster; H. F. Carey, Long Island Lighting Co.; and G. T. Logan, Philadelphia Electric Co.

cussed the permanency of the present price level and its effect on regulated business. Eliot S. Boardman, Assistant Vice President of the Federal Reserve Bank of Boston, spoke at the Customer Collections Committee luncheon on Tuesday, April 13, on the economic status of credits and collections.

Internal Auditing Committee

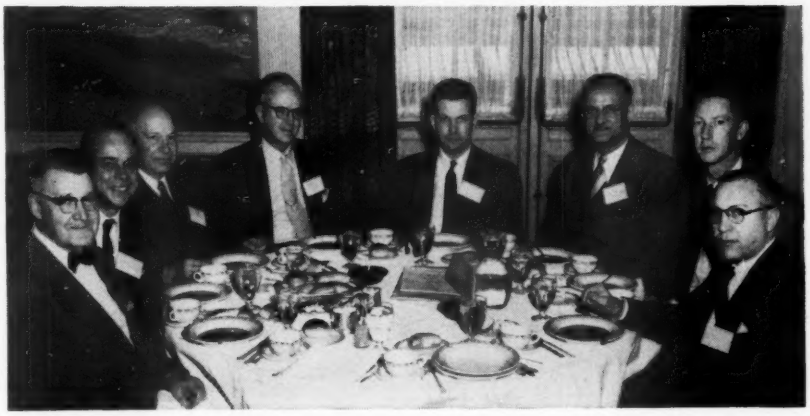
At the Internal Auditing Committee meeting on Tuesday afternoon, William Travers Jerome III, Director of the Army Controllership School, spoke on internal auditing as an aid to management. He discussed the three recurrent myths about internal auditing: namely, that (1) internal auditors need to be supermen; (2) auditors are unimaginative and pedantic; and (3) management can judge the success of the audit function by the number of deficiencies reported or the dollars allegedly saved.

The special electronics luncheon on Wednesday, April 14, featured as guest speaker R. F. Osborn, Manager, Business Procedures, General Electric Co. Mr. Osborn spoke on practically applied electronic accounting and discussed the preparation and installation of high-speed digital computing machines in General Electric's new plant.

Other topics discussed during various sessions on Tuesday and Wednesday included the use of punch cards in plant accounting; a practical illustration of the use of underground continuing property and age records; proposed tax legislation and accelerated tax depreciation; accounting and tax treatment for capital exhaustion in periods of changing price levels; employee attitudes and morale; changes in customer paying habits; high bill inquiries—practices, procedures, and prevention; new income tax forms and regulations; systematic training for customer accounting department employees; a survey of service lives and salvage ratios; and tax treatment of utility rate decreases.

In addition to the usual business machines exhibit there was a banquet on Tuesday evening which featured an hour of professional entertainment. The ladies were conducted on a sightseeing tour of places of historic interest in and around Boston. Further activity was provided by Boston Edison Co.'s invitation to visit the company.

Engaged in conversation at the Electronics Luncheon are (left to right) Fred J. Porter, Jr., Consolidated Edison Co. of New York, Inc.; R. F. Osborn, Manager of Business Procedures at General Electric Co.; James C. Messer, The Peoples Gas Light and Coke Co.; J. Douglas Elliott, The Detroit Edison Co.; and John H. W. Roper, Washington Gas Light Co.



Pictured at the Customer Relations Luncheon are (clockwise) Walter Fogg, E. C. Mann, and Louis Stoecker, all of Public Service Electric and Gas Co.; C. T. Shoch, Pennsylvania Power & Light Co.; R. B. Tritton, The Cleveland Electric Illuminating Co.; C. J. Berner, Wisconsin Electric Power Co.; J. H. Purdy, Consolidated Gas Electric Light and Power Co. of Baltimore; and H. R. Potts, Columbus and Southern Ohio Electric Co.

At the Accounting Employee Relations session a humorous comment provokes laughter from (left to right) Thomas J. Blake, The Peoples Gas Light and Coke Co.; George A. Ford, The Connecticut Light & Power Co.; Harold E. Steiner, Niagara Mohawk Power Corp.; J. Douglas Elliott, The Detroit Edison Co.; Joseph F. McCahon, Philadelphia Electric Co.; and George U. Callens, The Detroit Edison Co.

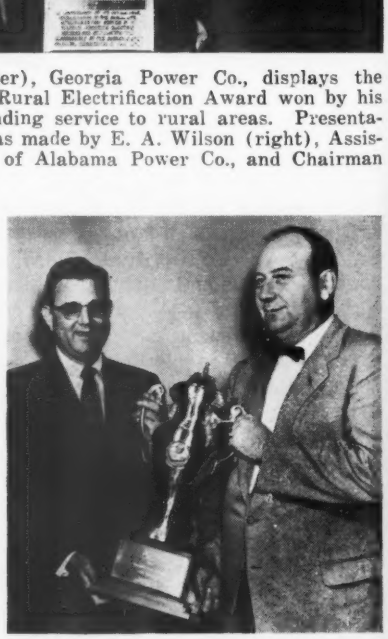
Showing their George A. Hughes Awards at the EEI Sales Conference are (left to right) G. E. Weatherton, Kentucky & West Virginia Power Co.; E. E. Gayman, The Cleveland Electric Illuminating Co.; R. W. Butts, Ohio Edison Co.; C. W. Ailstock, Florida Power Corp.; and L. C. Roe, Atlantic City Electric Co. At the right is J. A. Bell, Hotpoint Co., who made the presentations recognizing outstanding promotions of electric ranges, water heaters, and commercial electric cooking.

Holding their More Power to America Awards are D. B. McGregor (left), Arizona Public Service Co., and J. Frank Gaskill, Philadelphia Electric Co. K. H. Runkle (right) of General Electric Co. presented the awards which recognize companies and individuals contributing to industrial electrification.

Bud S. Moss (center), Georgia Power Co., displays the Thomas W. Martin Rural Electrification Award won by his company for outstanding service to rural areas. Presentation of the award was made by E. A. Wilson (right), Assistant Sales Manager of Alabama Power Co., and Chairman Restofski.

E. E. Gayman (left), The Cleveland Electric Illuminating Co., accepts the George Westinghouse Award first prize for electric-dryer promotion from Mr. Anderson.

E. M. Cobb (left), The Ohio Power Co., holds his company's George Westinghouse Award second prize for electric-dryer promotion. Mr. Anderson made the presentation.



R. Layfield (left), Georgia Power Co., accepts the George Westinghouse Award first prize for electric-washer promotion from J. J. Anderson, Westinghouse Electric Corp.

Potential for Sale of Appliances and Power Stressed at 20th Annual Sales Conference

OPTIMISM over the general economic conditions of the country and particularly of the electrical industry prevailed at the 20th Annual EEI Sales Conference, held at the Edgewater Beach Hotel, Chicago, on April 5-8. Over 1000 sales executives from electric companies and manufacturers heard speakers tell of the great potential existing for the sale of electric power and appliances in all markets. With generating capacity keeping pace with demand, sales forces are faced with a challenge, which, according to several of the speakers, can be met only by instituting a program of aggressive selling.

Industry Milestones

Presiding at the general sessions on Wednesday, April 7, and Thursday, April 8, was J. Reed Hartman, Vice President of The Cincinnati Gas & Electric Co. and Chairman of the EEI Commercial Division General Committee. In his opening remarks, Mr. Hartman noted that 1954 was a year of electric industry milestones. Not only was it the year of Light's Diamond Jubilee but also the twentieth anniversaries of the EEI Sales Conference, the founding of the Better Light Better Sight Bureau, and the founding of the Electric Water Systems Council.

Mr. Hartman stated that the co-operation shown among sales forces of electric companies and manufacturers during the past year indicates their desire to take advantage of the great opportunities that lie ahead for the sale of electric power and appliances. He praised the work of the Commercial Division committees in planning and producing sales aids for the industry.

At the Wednesday morning general session, Walter H. Sammis, President of the Institute and of Ohio Edison Co., stated that finding an outlet for increased capacity presents the industry with a sales challenge that has not existed for some years. However, he said, prospects for the expansion of the power market are excellent. Mr. Sammis pointed out that the industry will install its 100 millionth kilowatt of generating capacity next October. This capacity, when compared to last December's peak load of 81,200,000 kw, leaves a minimum of 18,800,000 kw of load for the industry to sell. He pointed out that a recent study showed that within ten years power requirements for lighting will nearly double the present annual consumption of 100,000,000,000 kwhr. In addition, nine out of ten families were found to be prospects for one or more major appliances. Sales of electricity, according to Mr. Sammis, have multiplied five times in the last 25 years, from 75,003,000,000 kwhr in 1929 to 382,000,000,000 kwhr in 1953. Mr. Sammis added that he saw no end to the continuing growth of electric company revenues.

Merryle Stanley Rukeyser, Business Columnist and Commentator, said that the most hopeful aspect of the current economic readjustment is that the national economy is capable of self-correction. Mr. Rukeyser said that despite the rigidities of labor cost, business is seeking a level of activity based primarily on civilian demand. In the process, he stated, the excesses in inventory and in installment and commercial credits are being adjusted and a base line for further growth will develop.

He indicated that instead of having sales based on fear of shortages and inflation, we are moving into a period when demand will hinge on the desire to buy. The salesman is coming back into his own, he predicted. Mr. Rukeyser then pointed out that the economic adjustment will be made through the acceleration of the economic revolution wherein mechanical energy (electricity) is substituted for expensive human energy. Thus, he told the conference, conditions are propitious for the growth and development of the power industry as the prime mover in this age of tremendous technological change.

On behalf of his company, The Cincinnati Gas & Electric Co., J. Reed Hartman (center), Chairman, EEI Commercial Division General Committee, accepts the George Westinghouse Award second prize for electric-washer promotion from M. S. Angier, Westinghouse Electric Corp. Harry Restofski (left), Chairman, EEI Prize Awards Committee, assisted in the presentation.

Prize Awards

The final presentation of the Wednesday morning session was the awarding of the prizes for the seven contests sponsored by the EEI Prize Awards Committee. Harry Restofski, Vice President of West Penn Power Co. and Chairman of the EEI Prize Awards Committee, conducted the presentation.

The Thomas W. Martin Rural Electrification Award was won by Georgia Power Co.

The George A. Hughes Awards, which honor outstanding electric appliance sales promotion, were presented to The Cleveland Electric Illu-

minating Co. and Kentucky & West Virginia Power Co. for electric range promotion; Florida Power Corp. for electric water heater promotion; and Ohio Edison Co. and Atlantic City Electric Co. for commercial electric cooking promotion.

Winners of the Laura McCall Awards for outstanding home service work were Mrs. Amy Thompson, Florida Power Corp.; Miss Ethel F. Lord, Jersey Central Power & Light Co.; Miss Evelyn Hansen, Utah Power & Light Co.; Miss Maurine A. Parker, The Ohio Power Co.; and Miss Ruth Shank, Union Electric Co. of Missouri.

Awards for Planned Lighting were presented in three categories: Commercial Lighting—Arkansas Power & Light Co., Texas Power & Light Co., and Union Electric Co. of Missouri; Residential Lighting — The Dayton Power and Light Co. and New Orleans Public Service Inc.; Industrial Lighting—New Orleans Public Service Inc.

The Frank Watts Awards for outstanding promotional and sales efforts in rural areas were presented to Texas Power & Light Co. as first prize winner, The Dayton Power and Light Co. as second, and Atlantic City Electric Co. as third.

Winners of the George Westinghouse Awards for automatic electric washer promotion were Georgia Power Co., first prize, and The Cincinnati Gas & Electric Co., second prize. The first and second prize winners for electric dryer promotion were, respectively, The Cleveland Electric Illuminating Co. and The Ohio Power Co.

Philadelphia Electric Co. and Arizona Public Service Co. were named winners, in their respective classes, of the More Power to America Awards for industrial electrification.

Building Bigger Residential Load

The opening speaker at the afternoon general session on Wednesday was Roy W. Johnson, Executive Vice President, Appliance and Electronics Group, General Electric Co. He outlined a long-range, six-point program designed to increase national appliance sales and build bigger residential load. Such a program is necessary, he pointed out, to insure the electric power industry the 7 per cent yearly growth needed to meet the current plan of doubling generating capacity in the next ten years.

Pictured above are winners of the Laura McCall Awards for high achievements in home service work. They are (left to right) Mrs. Amy Thompson, Florida Power Corp., Division A winner; Miss Ethel F. Lord, Jersey Central Power & Light Co., Division B winner; and Division C winners, Miss Evelyn Hansen, Utah Power & Light Co.; Miss Maurine A. Parker, The Ohio Power Co.; and Miss Ruth A. Shank, Union Electric Co. of Missouri.

Displaying their companies' Frank Watts Awards are H. M. Gibbs (second from right), Texas Power & Light Co., first prize; E. D. Smith (center), The Dayton Power and Light Co., second prize; and M. O. Whithed (second from left), Atlantic City Electric Co., third prize. Elliot Odell (right), Vice President and Advertising Director of *Farm Journal*, assisted by Chairman Restofski, presented the awards, which are given to electric companies for outstanding rural sales promotion.

Holding their companies' Planned Lighting Awards are (seated left to right) Donald Bootes, The Dayton Power and Light Co.; E. H. Gardiner, Jr., Texas Power & Light Co.; and J. F. Morton, New Orleans Public Service Inc. Standing (left to right) are Chairman Restofski; E. G. Barry, Arkansas Power & Light Co.; C. J. Sinnott, New Orleans Public Service Inc.; C. Carter Lewis, Union Electric Co. of Missouri; and S. L. Drumm, Chairman, Better Light Better Sight Bureau, who presented the awards.

The first of the six ways suggested by Mr. Johnson to help build a profitable residential load was promotion of the completely equipped electric home. The response of the builders and the public to these homes has been extremely enthusiastic, Mr. Johnson told the conference. A second way, he said, is to undertake a campaign encouraging employees to purchase electrical appliances. The third road to profitable load building, he stated, suggests a reappraisal of sales effort. On the part of the manufacturers, it means a close look at distributors and dealers. He advised that both electric power companies and manufacturers should thoroughly examine their sales forces and promotional plans to determine whether or not a satisfactory job is being done.

The fourth way to profitable load building, according to Mr. Johnson, is through the promotion of adequate wiring. This, he pointed out, is a job that calls for an all-out effort on the part of the entire industry. Mr. Johnson suggested as a fifth step that efforts with mortgage bankers and home builders be increased to achieve proper recognition of electrical equipment in the home. As his sixth and final point, he urged that the entire industry give fresh attention to the job of overcoming antiquated and restrictive codes and practices. "Such regulations and practices are, in many cases, seriously limiting the load-building possibilities of appliances such as the food disposer and dishwasher," he pointed out.

Electricity on the Farm

William A. Lyons, Vice President, New York State Electric & Gas Corp., whose topic was "Our Stake in Agriculture," urged all attending the conference to make better farm programs a first order of business when they returned home. Stating that the job of furnishing electric service to farmers is now practically complete, Mr. Lyons contended that electric companies must now maintain and develop real leadership in promoting the use of electricity on the farm.

He said that the national average farm use of 3100 kwhr is far below what it should be, what it can be, and what it will be. Mr. Lyons pointed out that in a recent Hotpoint projection for the electric home of the future, potential use was estimated at about 8500 kwhr annually. However, he declared, some farms in his company area have already reached a usage of 40,000-50,000 kwhr a year. He commented, "that is something to keep in mind when we talk potential future farm load."

Mr. Lyons said that in all parts of the country there are fewer people to run the farms and, consequently, the problem of production and the need for farm products is growing. These facts, he explained, point to a much greater dependence on electric help, if the electric companies will point the way. He said that only through better use of power can the farmer get done what we expect of him and at the same time keep the economic wolves from his door.

Increase in Industrial Use

Tomlinson Fort, Vice President, Westinghouse Electric Corp., predicted that use of electric power by industry—which is already at a record level of 257,000,000,000 kwhr a year—will increase by 55 per cent within the next ten years. Mr. Fort said that current trends indicate that future industrial power requirements will exceed 400,000,000,000 kwhr a year by 1963 with a rise from 9.5 to 15 kwhr per man-hour of production.

Behind this great increase foreseen in industrial power demand, Mr. Fort said, are two key factors: (1) the need for industry to free itself from today's web of rising labor and material costs by applying techniques of electrical modernization, thus increasing output per man-hour; and (2) the fact that productive man-hours in ten years will be no greater than today because of the trend towards a shorter work week, more holidays, longer vacations, and earlier retirements. In the face of the opportunities that await the electric industry in all markets, he stated, it is no wonder that we forecast that the future rate of growth for the electric industry will be 7.4 per cent annually compared with 3.4 per cent for the over-all economy.

The concluding speaker at the Wednesday afternoon session was Dr. Neal Bowman, National Association of Manufacturers, who delivered an inspirational and entertaining talk on the American way of life and how selling plays an important part in the economic picture.

The Thursday morning general session opened with a dramatic presentation, "The Jubilee Meets the Press," which pictured a typical electric company planning the celebration of Light's Diamond Jubilee.

Dr. Claude Robinson, Gallup & Robinson, pointed out that a great opportunity exists in the field of corporate advertising. People, he said, are interested in bona fide news about companies and what the companies are doing to serve the community. In his opinion, companies that exploit this concept imaginatively can greatly step up the hitting power of their advertising.

Dr. Robinson stated that much corporate advertising adheres to the indirect school of advertising—uses irrelevant illustrations, symbolic treatments, headlines with double meanings, and reasoning by analogy, all of which spells mental work for the reader and results in low registration of the advertiser's message. The reader, according to Dr. Robinson, insists upon being rewarded for his time and attention. Therefore, stereotyped treatment, stylized copy and ads that talk about *me* instead of *what I can do for you* register poorly. On the other hand, he said, ads that talk about how to solve the reader's problem or purvey news about a product or an institution, and do it creatively so that the reader can get the message without too much mental work, do well.

National Sales Educational Program

George E. Whitwell, Vice President in Charge of Sales, Philadelphia Electric Co., urged the electric companies to sponsor a national sales educational program for retailers and their employees. He emphasized the need to return to specialty-selling techniques in the appliance industry.

He deplored the lack of genuine selling in the post World War II period and the growth of "bootleg selling," as practiced by discount houses, premium plan operators, and others. The current problem in retail appliance selling includes bootleg selling in all its forms, according to Mr. Whitwell. It also encompasses, he said, an astonishingly low degree of any kind of salesmanship to take advantage of legitimate sales aids.

Mr. Whitwell insisted that now is the time for all branches of the industry to give the dealers the assistance needed to supplement their efforts. He

cited six ways in which the utilities could help the industry picture. They were: (1) selling at list price if they merchandise; (2) promote realistic financing; (3) establish and enforce good installation policies; (4) promote satisfactory servicing of appliances; (5) advertise appliances to expand the market; and (6) obtain the support of top management for aggressive sales activities.

The final general sessions speaker was Robert A. Whitney, President of National Sales Executives, Inc., who declared that selling can be the answer to the entire problem of balancing the national books. He said that if the producers of livestock would put as much effort into selling their product to the consumer as they put into complaining about "no sales," we wouldn't have to worry about price supports. The same, he commented, is true of cotton, butter, and other products.

In discussing the current economic situation, Mr. Whitney asserted that the shift from a producing to a consuming economy that has taken place in the United States since 1939 has made a depression in this country impossible. He said, "through education, salesmanship, and advertising, the American people have begun to want things. We make people want things before they need them. Extension of credit, which permits people to enjoy luxuries while they pay for them, and an improved tax structure, which takes pressure off the lower income group, have also contributed importantly to the modern American economic revolution."

Mr. Whitney pointed out that increased wages have completely changed the economic foundations of the United States since 1939. In that year, he said, only 6 per cent of the population earned $3000 or more annually, while today more than 60 per cent of the families earn that much —in 1939 buying power.

At the general luncheon, which traditionally closes the Sales Conference, Millard Bennett, Sales Management Consultant, outlined his approach to selling and human relations, upon which, he believed, not only a successful sales career but also a successful life could be built. As youngsters in school, he pointed out, we were taught the three R's—the foundation upon which formal education was built. Mr. Bennett's formula for success was based upon the three P's—persistency, personality, and perceptiveness.

In defining these terms, Mr. Bennett said: (1) you must have the will to succeed and do something about it: that's *persistency;* (2) you must represent a composite of those qualities needed to make people like you and want to work with you: that's *personality;* and (3) you must know how to use your knowledge and these qualities in your contacts with people; you must understand human behavior and be able to influence people to do what you want them to do: that's *perceptiveness.* In conclusion, Mr. Bennett said that these three qualities are the "three golden keys that will unlock for you the treasures of success." Persistency, he stated, is the key that unlocks your own mind, personality is the key that unlocks the minds of others, and perceptiveness is the key with which you get action from others.

The Home Service Conference was held on Monday, April 5, in a morning and afternoon session. On Tuesday the Commercial Sales Section, Farm Section, Industrial Power and Heating Section, and Residential Sales Section also met for morning and afternoon sessions.

Three special events took place during the four days of the Sales Conference. They were a Home Service Breakfast at 8:00 a.m., Tuesday, at which the Hon. Ivy Baker Priest, Treasurer of the United States, was speaker; a Farm Luncheon at noon, Tuesday, with George A. Bowie, Sales and Public Relations Consultant, as speaker; and a PUAA Luncheon, at Wednesday noon, featuring Kenneth W. Slifer, Vice President of N. W. Ayer & Son, Inc., as speaker.

President Sammis Awarded Engineering Medal

INSTITUTE President Walter H. Sammis received the Egleston Medal, Columbia University's highest award "for distinguished engineering achievement," last April 14. The award was presented to him at the Annual Egleston Dinner held at the Waldorf-Astoria hotel in New York City.

Mr. Sammis is pictured above (at left) chatting with Dr. Grayson Kirk, President of Columbia University, after the presentation ceremony.

The award cited Mr. Sammis as an "eminent engineer in the field of electric power production and distribution; faithful public servant; devoted son of Alma Mater; Electrical Engineer, 1917; a leader in his field in the organization and development of public utility companies; President, Ohio Edison Co.; President and Director, Pennsylvania Power Co.; Director, Commonwealth and Southern Corp.; Alumni Trustee, Columbia University, 1947-53; President, Edison Electric Institute; Trustee, City Hospital, Akron, Ohio."

Our Job Is to Serve

Walter H. Sammis

President, Ohio Edison Company, and
President, Edison Electric Institute

An address before the 21st Annual Conference of the Southeastern Electric Exchange, Boca Raton, Fla., March 22, 1954

THIS year the electric light and power industry is celebrating Light's Diamond Jubilee. Only a few weeks ago as a part of this observance the electric utility industry publicized the connection of its fifty millionth customer. In the comparatively short span of 75 years electric service has been brought to 99 per cent of all occupied establishments in the United States. Truly, electricity has become the servant of the American people. It is a bright, cheerful, and instantly responsive servant, one that is tireless, able, multi-skilled, does not watch the clock, asks no time off, never complains about too many little and monotonous jobs, never balks at herculean tasks, and unlike other servants asks for very little pay.

Not all of the talents of this extraordinary servant have yet been discovered. One would think that after all these years this servant's usefulness and capabilities would have been fully exploited, but every so often it reveals an ability to take on new duties and chores. There appears no limit to the ways this servant can serve, or to the size of job, large or small, that it can handle.

Housekeeping Chores Eased

Undoubtedly, the most striking and easily recognized contrast brought about by electricity during these 75 years has occurred in home life. In 1879 the housewife's day generally began at dawn and involved the hardest kind of physical labor. Clothes-washing, which is now done quickly and efficiently by the flick of a switch, was in that time a back-breaking operation starting early in the morning. Every drop of water had to be pumped by hand and carried in buckets. The kitchen stove, which had to serve also as a water heater, had to be fired with wood or coal, another tiring chore. Then the wearing task of scrubbing could begin. Ironing, cleaning, sewing—all the myriad tasks were done by muscle power.

As in the home, sunrise and sunset largely bounded factory and farm activities. Men and animals provided the principal energy for the work accomplished. At the turn of the century, before the electrical revolution gained momentum, the worker in the factory was earning about $9 for a 54½-hour work week. Compare this with the 1953 wage of $72 for a 41-hour week—eight times the wages for a work week shorter by one-fourth. Of course, a dollar went a good deal further in the early days than it does in present inflation-times, but the increased productivity brought about largely through electrical development has made possible a tremendous range of products within the worker's greater ability to buy, and his standard of living has reached heights which would have then seemed unbelievable.

More Manpower per Worker

Production of manufactured products was aided only in small measure by electrical energy at the turn of the century. In terms of manpower, the worker at that time had the electrical equivalent of two helpers. A half-century later, his 1953 counterpart in manufacturing was using electrical energy equivalent to the effort exerted by 240 men working with him on his job.

Without electricity, the production wonders of the assembly line would be inconceivable. Not only has less efficient human muscle power been relieved of a great portion of its burden in our economy but electricity, through its use for automatic controls, has made unnecessary much of the mental and physical drudgery formerly associated with the operation of manufacturing plants and the inspection of their products.

Further, the effectiveness of electricity in modern industry is evidenced not only by the great increase that has been witnessed in the productive capacity of plants but by the further fact that it is the completely electrified manufacturing plants that continue to operate in times of business declines. The cost of electricity in industry averages only .6 of 1 per cent of the value of the finished products.

Farm Electrification

In farm living there have been dramatic changes. Back in 1879, existence on the land was primitive even by the modest living standards of the time. Today, the farmer is an important beneficiary of electrical progress. In his home can be found the same labor-saving, comfort-producing electrical appliances that ease the life of his city cousin. Electrical equipment in great variety stands ready to relieve him of the back-breaking, tedious drudgery of the traditional farm chores. On farms in the eastern half of the United States the average annual use of electricity is about 3,100 kwhr. On some dairy and poultry farms the annual use ranges as high as 30,000 to 50,000 kwhr. While electricity has lifted many major burdens from the farmer's shoulders, research and development in the farm field have far to go before electricity's contributions to agriculture generally can be considered comparable to those made to industry.

In science and medicine a variety of electronic applications are making contributions whose full benefits to humanity cannot be evaluated.

In all these areas of human endeavor the light brought by electricity has grown brighter and more effective—not as a symbol but as a vital part of electrical progress.

In view of all this progress I question whether or not people fully appreciate the extent to which they depend upon electricity, unless perchance through some disaster the service is interrupted for a short time.

This past winter I noted accounts of the distress of a farming community center in Wisconsin served by its own power plant that blew up. The town was without an emergency source of power through either standby or interconnection. A neighboring utility brought relief within a few days, but, from the descriptions in the press, the inhabitants of that community learned all over again the conveniences and advantages that electricity had brought to their homes, places of business, and farms. This was a painful form of reminder, but it forcefully reveals to the thoughtful utility man in big, outstanding letters the full truth that our job is to serve. We are made to realize more clearly than ever that through diligence we have earned a great opportunity to serve, but with this great opportunity has come great responsibility.

The spirit of service—efficient, dependable service that is profitable to both the customers and the companies—must dominate our thinking and actions. The true interest of the public must be the compass to guide the course of management.

Adequate Power Supply a Must

At the top of our list of jobs for the customer is the responsibility of having an adequate and dependable supply of power. The accomplishments of the investor-owned companies in this respect—as revealed by the figures covering new construction since the war—are simply staggering. Total investment in electric light and power companies has increased from $12,500,000,000 in 1945 to a little over $25,500,000,000 today. According to the U. S. Department of Commerce, expenditures for new plant and equipment for all industries in the country since the war have amounted to slightly over $150,000,000,000, indicating that the electric light and power companies' expansion accounts for one-twelfth of the total.

It takes considerable time to provide new generating capacity, including determination of the size and location of the additional capacity and design and construction of the facilities. Prior to World War II, we thought in terms of two to two and one-half years, which gradually lengthened to three and one-half years to four years, and today probably averages three years. Thus, it is most important that the utility executive give considerable attention to the prospects for business in general throughout the nation, as well as locally, with the anticipated effect upon the particular utility company with which he is associated.

In 1952 the industry added about 6,800,000 kw of capacity. In 1953 it was 10,000,000 kw. At the end of 1953 capacity reserve was in excess of 17.6 per cent. According to the semi-annual survey of the Edison Electric Institute, there are scheduled in 1954 additions to capacity of 14,500,000 kw; in 1955, 11,300,000, and in 1956—so far—6,700,000.

Expansion Challenges Sales Forces

This expansion of generating capacity will necessitate our sales organizations doing an outstanding job of selling electric service so as to market this scheduled capacity. It is a challenge that has not existed for a number of years. Electric utility managements will build generating capacity at an even more rapid rate if the potential rate of increase in sales warrants.

Nothing but a shortage of critical materials, which might again come about at some time in the future as a result of national defense activities, should limit our ability to supply any markets our best sales efforts can develop.

Industry Anxious to Meet Demands

Investor-owned companies are willing, able, and anxious to meet the challenge of the ever-growing demands for electric service, no matter how substantial. This is exemplified by the actions of individual companies making up Electric Energy, Inc., and the Ohio Valley Electric Corp. and by the joint proposals that have been made by five power companies in New York State for the Niagara redevelopment; by five power companies in the Pacific Northwest to develop two hydroelectric projects on the Clearwater River in Idaho; by the efforts of Idaho Power Co. to develop the Snake River; and by the proposals of Alabama Power Co. to complete the development of the Coosa River by building five additional hydroelectric projects.

Another primary responsibility of our job is to strive always to improve the efficiency of our operations and hold down the price of electric service. Our industry has established a unique record during this era of inflation when the purchasing power of the dollar has dropped 50 per cent, when construction costs, Federal taxes, labor costs, and the price of fuels have more than doubled. Through engineering achievements, improvements in operations, and well-directed sales efforts, prices for electricity are lower today than they were before World War II. Where can we find another such example?

We have set standards of improvement that afford us no prospect of relaxation in the years to come in our efforts to serve capably. We must, therefore, look well ahead and scan all horizons to see how and where we can bring further benefits of low-price electric service to our customers. It is this consideration that justifies us in spending money on research and development, including research to discover how atomic power can be harnessed economically to supply electricity.

EEI and AEC

The Edison Electric Institute has pledged its co-operation to the Atomic Energy Commission. The chairman of the Institute's Committee on Atomic Power, Edgar H. Dixon, President of Middle South Utilities, Inc., has testified before the Joint Committee of Congress on Atomic Energy, urging Congress to amend the present act so that, supplementing the Federal government's activities, investors with their money may speed the development and utilization of atomic energy for power purposes for the benefit of the public. At the request of the Congressional committee, the Institute committee has submitted specific suggested amendments.

So far I have been referring to matters of direct responsibility on our part. However, we have a broader field of service to the people through participation in area development. It is essential that as good citizens we use our talents and planning abilities to participate in sound community and area growth. While many utility companies for decades have worked successfully with chambers of commerce and other local organi-

zations in promoting the development and profitable operation of industries, I am thinking more particularly of activities designed to improve educational and recreational facilities and in making the home town a better place in which to live. Nowhere have the accomplishments of the utility companies been more outstanding in area development than in the South.

Outstanding Examples

It was a former president of the Georgia Power Co., Preston S. Arkwright, who, 30 odd years ago, coined the slogan, "A Citizen Wherever We Serve." And you people are living that slogan. It remained for another Georgia Power man, Charlie Collier, to come up with the first Better Home Town Program. This activity has spread to other areas and has exerted considerable influence in making our small communities more desirable places for the young folks to make their homes, and in increasing the opportunities for earning a good living in these same locations.

I am reminded, too, of Thomas W. Martin, Chairman of the Board of Alabama Power Co., who was the prime mover in organizing the Southern Research Institute, an institution that has made scientific research available to small industrial groups throughout the South, and who has been a leader in many other enterprises for community, state, and regional development. And then there are Lou Sutton, with his Finer Carolina Program, who was acclaimed "The North Carolinian of 1953;" Hamilton Moses and the highly successful four-point program sponsored by Arkansas Power & Light Co., perhaps better known as The Arkansas Plan; Mississippi Power & Light Co.'s Helping Build Mississippi Club; and the notable exhibit of products of southern industry that has become a permanent feature of the International Trade Mart in New Orleans, thanks to the efforts of New Orleans Public Service Inc. and its affiliated companies.

In Florida, Florida Power & Light Co. and the other Florida companies have been doing an excellent job of publicizing their state as the only place in the country where you enjoy real summer weather in the wintertime.

Sometime ago, in getting material together for a farm electrification talk, I was interested to learn the extent to which member companies of the Southeastern Electric Exchange and their personnel have given of their time and abilities to soil improvement and cultivation. I hesitate to single out any company for its accomplishments in promoting agriculture, for it appears that practically all are doing an outstanding job in co-operating with vocational agricultural schools, universities, the U. S. Department of Agriculture, the agricultural extension service and experiment stations, farm and farm youth organizations, and equipment manufacturers.

The electric utility companies have an extensive and deep-rooted interest in profitable farming. The future of a considerable portion of their business is committed to and bound up in the future of farm electrification. They can be counted upon, therefore, to continue their long-time interest in agricultural development.

Company-Territory Relationship

I realize that there is a limit to how far we can go in spending money on these types of activities, but certainly the electric companies are well equipped to help in such endeavors, and their participation can prove of benefit to the individual companies, their customers, employees and security holders. After all, an electric light and power company cannot move away if business is slack and unsatisfactory. Unlike many manufacturers and other businesses, its investment in generating equipment and transmission and distribution lines is anchored in the soil of the territory it serves. The territory must, therefore, grow and prosper, if the utility company is to grow and prosper.

We have still another job to do for the customers we serve. Federal, state, and local governments need tax monies to operate, and electric light and power companies, as well as all businesses, should pay their fair share of taxes. Taxes that electric light and power companies pay are included in the bills for electric service paid by their customers. So in effect the taxes are paid by their customers.

Under existing laws our customers pay 14 cents of every dollar we collect from them for the support of the Federal government. Customers of Federal, state, and local government power agencies, however, are exempt from paying through their electric bills this share of the cost of the Federal government, as government power operations do not pay Federal taxes. We must continue in the interest of our customers to urge Congress to remove the unfair tax-exemptions enjoyed by government proprietary power business so that their customers shall share in the cost of supporting government and thereby reduce the burden that should be common to all of us.

Another 9 cents of every dollar electric light and power companies collect from their customers goes for the support of state and local governments. But government power agencies make little, if any, payments in lieu of state or local taxes. Since these government power operations enjoy benefits provided by local governments, they should pay their fair share of the cost of such benefits.

Congress should authorize state and local governments to levy taxes against the power facilities and power business of Federal agencies on the same basis that such taxes are levied against private business. As substantial local taxpayers, we are interested in the efforts of local governments to gain the right to tax Federal property, particularly where it is used in competition with private business, at the same rate as other similar property in each area. In addition to reducing the share of each local taxpayer, such action would help to reveal the true costs of Federal government power operations and would help to show the unfairness of the so-called "yardstick" and the uneconomic character of such operations.

Precedents for Recognition

There are several precedents for this recognition of the obligation on the part of the Federal government to assume part of the costs of local government. In the District of Columbia, seat of the national capital, the Federal government, according to Moody's Manual, pays over 10 per cent of the costs of the district's operations. The Federal government also contributes or pays local government costs in some areas where

plants of the Atomic Energy Commission are located and in other instances pays substantial sums for schools and other government purposes. In recent years the property holdings of the Federal government have greatly expanded throughout the nation, and the principle that caused Congress to assume a share of the cost of certain local government operations should be applied generally throughout the nation and particularly to a Federal government operation that competes with private business.

Another Inequity

I would like to mention another inequity. In some instances the interest against the capital the government employs is not charged against the government proprietary operation and in other instances the interest from the securities sold to finance the projects are free from Federal income taxes and in many instances free from state income taxes. Rates charged for government produced power should include the full cost of money. In the case of Federal operations, the full capital cost should be fairly allocated to power facilities by an agency concerned with the welfare of the U. S. Treasury and should include interest during construction. Such procedure would be no more than consistent with sound business principles.

If the Federal government included all costs in its charges for power, in practically every case the resulting charges would be greater than the market value of power in the same area that is or could be produced by electric power companies under the regulation of the Public Service Commission controlling power company rates.

Federal Discrimination Unfair

Another discrimination practiced by the Federal government in the power business is the preference which Congress has decreed, in most instances, shall be given to public bodies and co-operatives in the sale of electricity from Federal government projects. This discrimination against the customers of the investor-owned companies is unfair. It should be eliminated so that customers of private enterprise, co-operatives, or government operations will be treated alike.

If the government with the monies of its citizens is going to compete with them in business, certainly it should be on an equal basis with investor-owned business, charging to its business the true costs of doing business and not basing its prices on subsidized costs at the expense of the customers of investor-owned business and other taxpayers. The Federal government's power operations on a true cost basis cannot match our record.

When the Federal government in the Thirties embarked on its extensive program of building multi-purpose dams, it was claimed that production of electricity would be a by-product or incidental to some constitutional function such as navigation, irrigation, or flood control. This claim was unmasked in 1942 in the South in litigation involving the South Carolina Public Service Authority, a state-created agency enjoying Federal financial assistance. The authority petitioned for a rehearing in which it was stated that the Supreme Court of South Carolina in considering the case should have known, that, while the act creating the State Power Authority referred to improving rivers for navigation and commerce, this was only a constitutional safeguard, that the real purpose was to put the state in the power business.

Aim Was Industrial Socialization

Let me quote a paragraph from the petition for rehearing filed by the Authority:

> In the great national projects like the Bonneville Dam, the Boulder Dam, and the TVA, the improvement of navigation, reclaiming waste lands, and the creation of a "yardstick" for electric rates are illustrations of legislative declarations intended to overcome the probable hostile attacks, while at the same time everybody understood and now knows it as a fact that the object of the named projects, and of scores of others that have since been undertaken, was to socialize, so to speak, the business of producing and distributing electric energy through public grants and public ownership.

Twenty years ago the power generating capacity of the Federal agencies was .7 of 1 per cent of the industry's total. Today it is 12 per cent. Federal generating capacity has increased more than 40 times in this 20-year period. This generating capacity financed by billions of the taxpayers' dollars amounts today to approximately 11,400,000 kw. Although by itself, this figure is alarming, the real danger lies in what could be built on this foundation, if indifference to, or neglect or lack of understanding of, this situation should persist.

Federal Kw Expansion

Some 9,500,000 kw of additional generating capacity are now in various stages of construction for new Federal plants and additions to existing Federal plants, and close to 6,500,000 more kilowatts have been authorized by Congress, although all of the necessary appropriations have not yet been made. Above and beyond this, nearly 36,500,000 kw more have been listed by Federal government agencies.

The total of all of these projects —now in service, building, or contemplated—would come to 64,000,000 kw, or nearly as much as the present total generating capacity of America's investor-owned electric utility companies.

The entire private electric industry has taken new heart from the courageous and statesmanlike approach that the member companies of the Southeastern Electric Exchange have taken with respect to public power. While there may have been differences as to the most desirable solution of this problem, these differences have not been allowed to weaken the Exchange's resistance to the threat of socialized power.

Power Supply a Local Operation

There is another matter affecting service to our customers that deserves our active attention. The supply of electric power is inherently a local business even though service areas may spread across state lines. True, we have built interconnections that extend over many state lines and should continue to do so, mainly for reliability of service, but also for refinement in economies of operation. Nevertheless, the big job is a local operation and must always be so.

It is a well-accepted principle in the rendering of electric service that

(*Continued on page* 158)

Atomic Energy and Electric Power

E. H. Dixon
President, Middle South Utilities, Incorporated, and
Chairman, EEI Committee on Atomic Power

An address before the 21st Annual Conference of the Southeastern Electric Exchange, Boca Raton, Fla., March 24, 1954

MY purpose is to attempt to report in simple, nontechnical language on the present state of atomic energy as it relates to our industry. I hope that no one will feel that I am underrating his ability to understand thoroughly the most complicated and technical of subjects. I do feel, however, that there have been so many scientific presentations on atomic energy that the down-to-earth businessman may not be aware of some of the fundamental, nonscientific facts of interest on this broad subject.

Atomic Energy Use Not Far Off

Techniques for peacetime use of nuclear fission have come along with almost breathtaking rapidity. Just a few years ago the beneficial use of atomic energy in peacetime appeared to be little more than a hope and a distant goal. It now appears that this prospect may well become a reality during the business careers of a good many of us. While there is still considerable difference of opinion among folks as to when atomic energy may be utilized commercially for generation of electricity, it is significant that the argument has boiled down to one of "when" and not "if."

As an illustration of this, a recent issue of *The Wall Street Journal* carried two interesting stories on this question. One reported a school of thought among informed engineers from private industry and government predicting that in ten to 12 years at least 10 per cent of the new generating plants being built in the United States would be atom-powered. This article went on to say that some super-enthusiasts seem to think this is more likely to be 20 per cent, and that they think we will know how to produce electric power from uranium as cheaply as from coal in five to six years.

The other article in this same issue quoted the president of a large electric utility system as saying, ". . . the effect of atomic power on sources of energy in the United States still is bound to be almost negligible during the next ten years, and only slight during the ensuing five years. In the decade after that it may pick up to some significant figure." So you see that you can pay your money and take your choice. But as wide apart as these views seem to be, the important thing is that the difference of opinion revolves about "when" and not "if."

I think there is little question among informed people in our industry that what we are talking about here is a fuel to complement and supplement those now used by our generating plants. Despite the fact that there was a good deal of publicity over a minute battery that functions directly from radioactive material, I think that our friends in General Electric, Westinghouse, and Allis-Chalmers need not worry about future orders for orthodox turbines, generators, switchgear, and the like because of this development. While many of us may live to see reactors take the place of boilers in some of our new plants, I don't expect to see the day when each house will have its little pile of uranium where the entry switch for our service is now located.

A Fundamental Objective

One of our industry's fundamental objectives is, and has been since its inception, to seek lower costs of generating electricity for the continuing benefit of the public. To accomplish this, we are naturally desirous of expanding fuel sources available for generation of electric power and conserving the nation's reserve of fossil fuel. We cannot help but be impressed by estimates indicating that the energy in natural deposits of uranium and thorium is many times greater than that contained in known recoverable reserves of coal, oil, and gas.

All of us have seen responsible predictions of future use of our services. Recent figures which have come to my attention indicate that by the year 2000 the world may be consuming roughly five times as much energy per year as it is at present. A leading equipment manufacturer has ventured the guess that by the year 2050 the world may find itself burning something like 25 to 50 times as much energy in a year as it is now.

Coal Supply May Be Exhausted

There is a question in the minds of some that even coal, the number one conventional fuel, won't be able to satisfy the demand for energy that will be felt during the remainder of this century, let alone the succeeding 50 years. Then too, the time may come when the burning of coal will be looked upon as too wasteful of its precious by-products. One way or another, our historic energy sources would seem to fall far short of meeting world requirements that are now foreseeable.

While much is said about whether or not nuclear energy is or ever will be cheaper than energy derived from fossil fuels, it seems to me that this question one day will be secondary. For regardless of comparative costs, we must sooner or later develop a new commercial source of energy if we are to sustain the present phenomenal rate of increase in the use of energy.

Thus, there is a very real incentive for all of us to explore any situation that has promise, and it certainly appears that atomic energy as a useful fuel for our purpose has real promise.

It pleases me very much to know that our industry is moving into this program under a full head of steam. This activity is taking many forms. On an industry basis, the original informal committee work of the Edison Electric Institute soon blossomed

into a strong and active standing Committee on Atomic Power, comprised of the heads of major power companies and systems representative of every section of the United States. This committee was determined that the American public should know that our industry has a real desire to promote any advance in the art that would be of benefit to the consumer. The committee's activities early came to the attention of the Atomic Energy Commission and the Joint Congressional Committee on Atomic Energy. The Institute committee was invited to appear before the Joint Congressional Committee to exchange views on the desirability of amending the Atomic Energy Act. Subsequently, it was asked to prepare and present definitive legislative suggestions to accomplish that purpose.

Request Made to Only Two Groups

I think we can all be proud of the fact that this latter request, to my knowledge, was made of only two groups, the American Bar Association and the Institute. It is with pleasure, too, that I can report that the recent recommendations by President Eisenhower for changes in the Atomic Energy Act to permit greater industrial participation were in harmony with those contained in our committee's legislative suggestions and accompanying memorandum.

Our industry has approached this problem on some other fronts. At the request of the Atomic Energy Commission for industry participation in research and developmental work, eight industrial and utility teams were formed to make surveys of reactor technology. These eight study groups include 31 electric power systems that represent approximately half of the total generating capacity of our country. And that's not all: one of the members of the Atomic Energy Commission, Thomas Murray, made a startling announcement in Chicago last October to the effect that work was to start promptly on construction of a 60,000-kw nuclear power plant, known as the Pressurized Water Reactor, or PWR. He invited participation by industry in this project.

Many were dubious that industry would respond, in view of apparent economic limitations as well as the severe restriction embodied in the Atomic Energy Act. The present law does not permit industrial ownership of a reactor and, for that matter, doesn't allow industrial ownership of either the fissionable materials required to fuel such a reactor or by-product plutonium. The AEC may make fissionable materials available under certain conditions but they are subject to recall at the discretion of the commission.

Nine Groups Responded

Despite these and other barriers, and, I might add parenthetically, somewhat to the pleasant surprise of some of the folks at the Atomic Energy Commission, nine different applicants or groups of applicants responded to the AEC's invitation. Most of them offered to put some "real dough on the line." The first question that may come to mind is why, under the circumstances, would any company want to fool with this thing? It is going to be very expensive to build. The resultant kilowatthours are going to be far from competitive in price. And there are many who will say that this particular reactor is obsolete, or, stated more properly, is not nearly as promising as some designs under consideration.

Maybe I can best answer these questions by giving the reasons that prompted the Middle South System Companies and Ebasco Services to team up in making an offer to take part in the PWR project.

"We Want a Front Row Seat"

In the first place, one would think there would be less incentive for us than for many other utilities, as our operations center is an area blessed with natural gas. However, we must take into consideration the historically rapid ascent of gas prices. We have seen one pipe line after another built for the purpose of transporting this premium fuel away from our area. We think that we are going to participate fully, and very likely to an above-average extent, in the predicted growth in the electric power requirements of this country. All of this spurs us to overlook no bets for future fuel security. Furthermore, if there is something new on the horizon with a promise of benefit to our area and our customers, we certainly want a front row seat at the show.

How about this obsolescence problem? Didn't that worry us? At first it did, but then we did some more thinking and remembered a few fundamental truisms. From the purely scientific viewpoint, almost everything is obsolete, at least to a degree, by the time it comes off the drafting board. Inevitably, in an economy as dynamic as ours, by the time a drawing is finished the author has already thought of a couple of improvements to include in his next design.

Also, we couldn't help but think back to around the 1900 era, when the relative merits of the steam turbine, the diesel engine, and the reciprocating steam engine were being debated. Frankly, that was a little ahead of my active participation in the utility business, but I am told that the experts of the time were convinced that the steam turbine held the least promise. They thought it could be proved conclusively that both the diesel and the steam engine held far more promise of greater efficiency. So what happened? Here we are, some 50 years later, with almost complete reliance on the steam turbine, the one voted most unlikely to succeed.

Helping PWR Advantageous

With reasoning such as this, and with the knowledge that the PWR would lend itself to various kinds of experimentation and improvement in both costs and efficiency, we became convinced that it would be to our advantage, and to that of our industry, to assist in the development of this reactor. I suspect that some thinking along these same general lines may have motivated Duquesne Light Co. to make its successful proposal, and the other groups to make their offers.

If I may digress briefly, I would like to point out what I think is a rather significant trend in the matter of location of power reactors. The first such reactor was constructed in the sparsely-settled area of an Idaho desert. The reactor for the second atom-powered submarine, the Sea Wolf, is to be built a few miles outside of Schenectady. The 60,000-kw plant is to be built in the metropolitan Pittsburgh area on a site which I presume will have populated areas within a mile radius.

In other words, as the art of reactor control and safety progresses, the reactors are located closer to populous areas. It seems reasonable to believe that the PWR has more rigid site requirements than succeeding plants of this type may require, since this project will no doubt be tested under the severest of conditions.

Judging from this apparent trend, we may one day approach the situation recently suggested by an English nuclear specialist. He said that his country has every intention of locating power reactors even closer to residential districts than its present steam stations, since reactors do not have the messy problems of coal storage and fly-ash disposal.

I have commented on some of the direct objectives that have caused our industry to participate in our country's atomic energy program. There are also some indirect objectives and incentives. For instance, it seems logical that great national prestige would be achieved if the United States were to become the first nation to utilize nuclear power extensively on a peacetime basis. Also, our industry possibly can assist in devising more economical means of producing fissionable materials for national defense and help to create a commercial market for these products. Then too, successful development of atomic power generation could provide means of invaluable technical assistance to our nation's allies and other friendly nations.

Opportunity to Help Allies

If we could assist other free countries in applying atomic energy to electric power production, we would be capitalizing on a rare opportunity to provide economic strength to our friends and allies. Finally, participation by electric power company personnel in the program adds to the nation's store of trained and experienced nuclear energy experts. It lends a further measure of geographic diversification of these specialists throughout the country, a consideration that would be significant in time of national emergency.

At this point it might be appropriate to comment on the current situation with respect to atomic energy in other countries. Not many years ago the United States was the exclusive possessor of a stockpile of atomic weapons. Now, two other countries, Great Britain and the Soviet Union, have atomic bombs. In addition, atomic energy programs for peacetime purposes have developed in Canada and several free European nations. Four countries of the free world outside of the United States now possess nuclear reactors—Canada, Britain, France, and Norway. Sweden has one under construction, and certain other countries, including Belgium and Switzerland, reportedly are drawing up reactor construction plans. The Norwegians share their reactor with the Dutch.

As former AEC Chairman Gordon Dean pointed out recently, in a real sense it can be said that atomic energy is "bursting out all over." This is one of the dominant forces in the world today and one toward which an industry such as ours must develop a realistic attitude.

Power-Cost Aspects Sketchy

Those in our industry who are the doubting Thomases with respect to nuclear power possibilities lean heavily on the economics of this energy source to support their case. This is a subject about which we have a great deal to learn. Reactor experiments to date have not contributed appreciably to an understanding of the dollars and cents of nuclear power production costs. The AEC has constructed two very small experimental reactors from which heat energy has been converted incidentally into electric power through the medium of turbo-generators. Neither of these has afforded any pertinent information as to power costs. The reactor for the Submarine Nautilus likewise offers little help in assessing the commercial potential of nuclear power, in view of its rigid specifications.

Another major problem concerning the economics of nuclear power relates to the disposal of plutonium. which various reactor types now under consideration would produce in addition to power. While, initially. excess plutonium might be purchased by the government for military purposes, an artificial market of this kind obviously cannot be depended upon throughout the expected life of a generating plant. Eventually, the nuclear power installation must stand or fall on the basis of the electric energy produced, coupled with whatever revenues may be derived from sale of plutonium as a fuel or for other commercial uses. Other by-products, including the fission products or ashes of the chain reaction, likewise may be found to have value, although at present these materials present an expensive disposal problem.

Economic Considerations

Attempts to ascertain the economics of nuclear power generation at this time can yield only rough approximations. There are a good many variables in the picture, and most of these can only be overcome through actual experience with sizable reactors. The Pressurized Water Reactor, for example, will include several design features aimed at holding down both installation and operating costs. In the aggregate, they represent a long stride into the future. One of these that I understand is particularly important is the attempt to attain the longest possible life span of the fuel charge. This is intended to cause the complex and expensive fuel reprocessing and handling operation to be required less frequently.

Problems of this kind illustrate that there are important areas of potential improvement in both costs and efficiencies of power reactors. We really have no way of knowing what reactor power costs will be, or how they can be reduced, until appropriate experiments and research have been conducted on a sizable scale.

Practical experience with several promising reactor designs should be forthcoming under the proposed five-year reactor program announced earlier this month by Atomic Energy Commissioner Smyth. This program would include construction of not only the PWR but also at least four other reactors, each of a different basic design. Two of these proposed projects—the breeder reactor and the homogeneous reactor—would be of intermediate size, with ultimate capacity of around 15,000 kw of electric power from each. The others—the so-called "boiling water" reactor and the sodium-graphite reactor—would be smaller. The latter,

in fact, probably would be tested without any electric generating plant attached.

The AEC heartily encourages industrial participation in its activities wherever feasible. However, it appears doubtful that industry will take part in at least three of these reactors, other than in the role of subcontractor. This is because of the relatively small size of these developmental projects, as well as the obvious advantage of retaining full control of their design in the hands of the commission. I am nevertheless optimistic that opportunities for participation by our industry in specific projects will be available from time to time.

In comparing estimated costs of electric energy derived from nuclear power with those of energy obtained from conventional fuels, there is one consideration which seems to be frequently overlooked. Most comparisons are made on a basis of present costs of energy from conventional plants and expected future costs of electricity from atom-powered plants. This approach neglects a fundamental characteristic of the electric power industry—that of constantly seeking and developing improvement in installation costs, in efficiency, and in operating costs.

New Approach to Further Progress

While in recent years there has been some indication that curve of progress in power plant design is flattening out, we are all aware, I am sure, of new avenues of approach that seek further progress beyond present design limits with respect to temperatures and pressures. A good example of this is found in the plans of Phil Sporn, General Electric, and Babcock & Wilcox for a large new plant with a heat rate expected to be some 10 per cent lower than has been achieved to date.

In view of these and other current experimental activities, it is apparent that the economics of generating electricity from fossil fuels should by no means be treated as something static. In budgeting time, effort, and money for improving the prospects of supplying electric energy in the most economical way, it seems logical that we should not only make a full investigation of the interesting potentials of atomic energy, but also continue to seek progress along more conventional lines where more immediate returns appear possible. In other words, we should pursue a program whereunder development of nuclear power is balanced and integrated with work aimed at improving our shorter-term objectives of lower-cost energy from conventional fuel sources.

Legal Aspects

The time when nuclear plants can begin to assume a substantial fraction of our annual requirements for expansion of energy production will depend not only on these economic and technical considerations but also on the legal aspects of the problem. The Joint Committee has given careful consideration to the detailed proposals for amending the law that the Atomic Energy Commission submitted as a followup to the President's broad recommendations and in mid-April introduced in the Congress proposed legislation in bill form. It is expected that the Joint Committee will now hold further public hearings on the subject of its far-reaching proposals for amending the law.

The legislation under consideration by the Joint Committee would affect not only the domestic aspects of our peacetime atomic power program but also our international policy concerning the atom. Inasmuch as last summer's open hearings covered the domestic situation rather thoroughly, it is presumed that a good part of any hearings held this spring would be devoted to the international aspects of the proposed legislation. In any event, there seems to be some real hope that action may be taken with respect to the Atomic Energy Act during the present session of Congress.

I believe that my observations may be summarized under three major points.

First, there are many benefits that this country can derive from development of a practical nuclear power technology. Whether these benefits are direct or indirect, long-term or short-term, they appear to provide sufficient incentive to encourage electric utility companies and others to continue their sincere efforts toward perfecting processes by which electricity may be produced economically from nuclear reactors. Over the near-term, or until progress is made in improving the economics of atomic power, I expect that the research and developmental undertakings of the electric utility industry in this program will be balanced with our efforts aimed at further reduction in generating costs at conventional plants.

Secondly, the technical and economic problems involved in the transition of nuclear power development from the present embryonic stage to wide-scale commercial applications are of great magnitude. Therefore, an extended period of development work appears necessary in order that nuclear power may become competitive, particularly when it is considered that the technology of generating electricity from fossil fuels is continually improving. It is my sincere belief that the Atomic Energy Commission will give the electric power industry and others every possible opportunity to participate in the various developmental power reactor projects which come along in the next few years.

Outlook for Commercial Use of Atom

Finally, the work of the Atomic Energy Commission, the several study teams, the Duquesne Light-Westinghouse project, and others should bring us to a position from which the prospect will open up for private development of commercial nuclear power. Even with the existing restrictions, an important step forward was made through the decision of the AEC to construct the first large-scale nuclear power plant. A still more important step forward, as I see it, was the very fine response which our industry and others made in offering to invest money and to take part in the operation of the PWR project. The fact that nine offers were made for participation in this important plant should provide a clear indication of the desirability for amending the Atomic Energy Act. There can be no doubt that industrial participation of this type will be still further encouraged if Federal legislative and administrative policy is shaped so as to make this possible.

It is my firm opinion that the United States will win the race for successful peacetime use of atomic power, and I am sure the electric industry will play a leading part in the achievement of that end.

Specialty Selling—A Lost Art?

George E. Whitwell

Vice President in Charge of Sales, Philadelphia Electric Company

An address before the 20th Annual EEI Sales Conference, Chicago, Ill., April 8, 1954

IN only one year, 1945, has there been no EEI Sales Conference since the initial one in 1934. The record shows that on March 14 and 15, 1934, commercial men "came 200 strong" and that the meeting was "a success richly deserving repetition at a later date." This year's gathering is the twentieth anniversary of that beginning.

As first chairman of the EEI Sales Committee (now the Commercial Division), I presided at that first conference, and it is a source of considerable satisfaction to me that I am, without benefit of wheel chair, again on the conference program.

BLBS 20th Anniversary

This year is also another milestone in our selling progress. It is the twentieth anniversary of the Better Light Better Sight Bureau.

At the first Annual EEI Convention, I read a paper, to which I shall refer again later, that suggested a National Lighting Promotion as a selling specialty peculiarly appropriate to the then deep depression conditions. The record states that:

"The program was an activity of the EEI Sales Committee, of which there was named a 'Special Committee on Lighting Program,' chairmanned by Merrill Skinner. . .

"The slogan 'Better Light Better Sight' was suggested by H. Freeman Barnes and was selected (in June, 1933) from among many suggestions. . . Sometime between June, 1933, and March, 1934, Merrill Skinner's committee came to be known as the Better Light Better Sight Committee. . .

"The first meeting of the BLBS Bureau was held in the Westchester Country Club on August 1, 1934."

Yet, today, two extremely important twentieth anniversaries are not all. To complete the picture, it must be stated that this is the year of Light's Diamond Jubilee. What a tribute these three milestones are to the development of all of the branches of the electric industry! What a part specialty selling, until more or less recently, played in that development! What fantastic opportunities lie ahead!

How about selling today? Perhaps you saw, among the many that have appeared on the subject, the article entitled "Death of the Salesmen—An Old Calling Needs New Life." It was in *Time* magazine under date of January 25, 1954. It has been reprinted, and I understand has had wide circulation.

The article began with the following sentences: "Commerce Secretary Sinclair Weeks needs two new cars, but he has vowed not to buy them until a salesman calls on him and 'sells' him. Complained Weeks: 'I have not heard from an automobile salesman for at least four years.' All over the U. S., businessmen would agree with the Secretary that the great American salesman, if not dead, is fast asleep."

The article continued at some length and I will repeat from it only a few sentences: "Says President George P. F. Smith of Borg-Warner's Norge appliance division: 'Retail Salesmen? There are no such animals. The present crop of salesmen never had to sell, and the oldtimers who did are now in executive positions or have retired'. . .

Retail Management Faulty

"Much of the blame lies with retail management. The average department store spends no more than two or three days in the basic training of new salespeople, and much of that time is spent simply showing them where the rest room is and how to fill out forms in quadruplicate. . . Big stores carry so many competing lines of equipment that they hardly dare plug any single brand. . . In Denver, when Daniels & Fisher scattered its fire on five makes of appliances, sales were slow. Recently, it has concentrated on one, and appliance sales have soared 345 per cent. Usually, where selling improves, aggressive management is responsible. . .

"With $200,000,000,000 in liquid assets and an annual income of $285,000,000,000, there is no doubt that U. S. consumers have plenty of money to buy and keep business humming at high levels. But, like Secretary Weeks, they are no longer willing to go hunt someone to sell them something."

Under the title "Bootleg Selling," Ben R. Gordon, Executive Vice President and General Manager, Rich's, Inc., Atlanta, Ga., defined for the National Retail Dry Goods Association what he called "bootleg sellers." Can it be that they have been substituted for salesmen?

"Bootleg Sellers"

I will list here only his names for these bootleg sellers and refer you for details to his paper:

1. Discount houses
2. Premium plans
3. Club plans
4. Fake wholesalers
5. Double-dealing manufacturers
6. Fake membership plans
7. Double-standard manufacturers
8. Group organizations
9. "Tie-in" manufacturers
10. Quota-mad manufacturers

With specific reference to discount houses, I direct your attention to articles on the subject in *The Wall Street Journal* for March 8 and 9, 1954. They were headlined in part: "The Price Cutters" and "Discount Houses—Most Save on Deliveries, Sales Help, Frills."

The March 8 text started as follows: "It's getting to the point where you're considered a fool if you buy anything at the regular retail price." The opening words on March 9 were: "A speakeasy flavor, a contempt for carpeted floors and frills, and secret cooperation from many publicly-hostile manufacturers." Two electric appliance manufacturers were specifically mentioned as having "backed up their protests"

against "bootleg selling" with law suits and injunctions.

It is still true, fortunately, that the purchaser, by and large, gets only that which he pays for. Discount purchases, under whatever name, of many merchandise items are made, with few exceptions, from those who according to *The Wall Street Journal* follow some or all of the following practices: no deliveries, fancy wrappings, frilly store furnishings and displays; small and crowded stores; no credit departments and mostly cash sales; and no appliance service and little advertising.

It is interesting that discount houses are said to have increased eight or ten times during the period that specialty selling has gone from its zenith to almost nonexistence. It seems to me as if trained specialty salesmanship could produce many more appliance sales with complete retail selling services and at or near list price than is now the case. Am I wrong in believing that such sales are necessary for complete appliance value and enjoyment for the purchasers?

Picture of Retailing Today

I could go on indefinitely quoting similar material from either the press or trade magazines. I deliberately chose that which I have given merely to paint with broad strokes of the brush not my picture of retailing today and over recent past months but the conceptions of but three other sources among many. They give, I think, a realistic and authoritative composite for the country as a whole.

Bootleg sellers are not new. They have been with us ever since I can remember. They assume importance to us today because the trained specialty salesmen to replace them in the domestic electric appliance field have all but disappeared.

A summary of the problem, insofar as domestic electric appliances are concerned, includes but is not limited to:

1. Bootleg selling in all of its forms in lieu of specialty salesmanship;

2. An astonishingly low degree of any kind of salesmanship to take advantage of legitimate sales aids, such as advertising, deferred-payment terms and trade-ins;

3. An almost complete lack of sales training; and

4. Far too little product, wiring, installation, and other essential education for retailers, particularly the large army of smaller ones.

Let's now examine briefly the field of domestic appliances. Although it is apparent before we start that, as a result of such examination, there will emerge no simple solution to the problems involved, perhaps we, in the utility business, can find some path which, if properly timed and realistically followed, will lead to improvement.

Some Personal Thoughts

In that which follows, I am speaking as an individual utility man and for no one other than myself. I will try to stick to facts. It is certainly not my purpose to be opinionated, to tell others what to do, or to criticize any electric industry practice even though I name it. I have only the highest admiration for the fine results that have been obtained over the years of my experience by the great bulk of electrical manufacturers, wholesalers, dealers, and contractors.

For the past several years, there have been in appliance merchandising many, if not all, of the trends and practices applicable to general retailing to which I have already referred. Because of the continuing buyer's market until very recently, there has been a tendency generally but, happily, not entirely to merchandise appliances like turnips and cabbages. The theory has been to get the prospective purchaser into a store or in touch with a catalogue and let nature take its course.

"Advertising Model"

Millions of dollars are being spent on schemes to get the prospect exposed to the merchandise. One of these plans calls for the "advertising model," which usually is a low priced, stripped model with a "loss leader" discount. Many, if not most, of these advertising models carry discounts below the cost of doing business by reputable and well-established retailers.

Lower discounts are not limited to advertising models or loss leaders. Discounts generally have been reduced gradually from, and those on major appliances well below, pre-war standards.

Those of us who have had intimate experience for as much as 20 or 30 years with the electric appliance business, now a multi-billion dollar giant, know that it was created and has been caused to grow primarily by one thing. That thing was specialty selling. When World War II called thousands of well-trained specialty salesmen away from the job, a loss was incurred that, unrecognized because of other conditions over a dozen or more years, has caught up with us now.

Before the war, when a market did not exist, the door-to-door salesman created one. Specialty salesmen had only an academic interest in the economic situation. Their philosophy was that, under adverse business conditions, they could obtain a larger share of the remaining market.

Hard hitting specialty organizations similar to those that retailers and utilities employed before the war have become, because of increased costs of retailing coupled with lower percentage discounts, a necessity that the retailer is usually quick to say he now cannot afford. The present procedure seems to be to supplant the work of the specialty salesmen with national advertising, price leaders, premiums, contests, and other promotional schemes.

Free Gadget

With one type of promotional program most all of us are familiar. It is announced in a national advertisement that every customer who purchases an XYZ appliance will receive, free of charge, some gadget worth $15.00. The salesman of the local distributor visits the retailer and explains the operation of this offer.

He points out, first, that the manufacturer is paying most of the cost and only a small contribution is paid by the retailer. It is predicted that sales will double or triple and, therefore, of course, the retailer won't mind contributing $5.00 toward the cost of the gadget even though this amount may be several per cent of the margin which he believes is already slim.

Actually, the average retailer has little choice. He either pays the $5.00

or must take the merchandise off his floor and probably suffer financial loss thereby. This type of promotion seems to me to be a poor substitute for specialty selling.

Then, under today's conditions, few are really out creating new prospects for appliances. Retailers actually are fighting each other for the pre-sold prospect who is shopping for a better price. Here is where yesterday's specialty salesman, selling at list price, is missed most. He created markets and desires in those markets that really expanded the users and their use of all appliances. A half-dozen dealers, each offering a prospect, already sold, a lower price, create no markets.

Today, the prospect may have been inspired initially by an advertisement of a top-notch and well-known manufacturer, distributor, retailer, or utility. He may end up by buying a relatively unknown brand, or one using a competing fuel. Induced by present-day practices to shop for price, the prospect forgets that he started out to purchase the appliance of the advertiser.

Two Classes of Dealers

In my experience, dealers, large and small, divide themselves into two classes. First, there are those who are trying to do a conscientious, thorough selling job, and, second, there are the boys, Johnnie-come-latelies in the business, who are after a fast buck.

As long as prospects were plentiful, the situation, though always threatening, was not serious. Temporarily, the major benefactors were the manufacturers, the distributors, the contractors, the utilities, and their customers. It is tough, perhaps, but I think true that this honeymoon is over, and it is time for the birth of some specialty salesmen.

For today the situation has changed, and the legitimate appliance retailer is deeply concerned. Under existing competitive conditions, even a slight reduction in sales can mean the difference between a small profit and bankruptcy; few dealers are in a position to create new prospects; and retailers have no encouragement to train and support a specialty selling organization. Moreover, many of the sales that might be created by specialty methods are lost to bootleg sellers.

There have been increasing requests from dealers for leadership during the period that is immediately ahead. Several national dealer organizations are giving the problem serious consideration. Only recently, I had a long and, to me, helpful talk with a high officer of one of these groups.

There are several things that can and should, I think, be done about the situation. Perhaps you will agree that, if dealers continue to give 15- to 25-per-cent discounts, there will be a great many fewer of them in the near future. The vast majority of the better dealers are aware of this fact. Now is the time for all branches of the electric industry to give these dealers the assistance they need to supplement their own efforts.

Utilities Do Their Share

I do not go along with those who, through misinformation or failure to think the problem through, continue to put into the minds of some manufacturers, distributors, and dealers the definitely questionable thought that utilities are the major beneficiaries of appliance sales. I do not intend to debate this statement. The same basic facts that have prompted me to make it are available to demonstrate benefits to manufacturers, distributors, and conscientious dealers commensurate with the time, money, intelligence, and effort expended by them on appliance selling. I do not think you have found or will find the utilities lagging in doing their share and more.

Manufacturers Can Contribute Much

Manufacturers, in their own and mutual interests, can contribute much toward stabilizing the appliance business by speeding up their efforts to improve the quality of their dealer organizations and their local sales aids and thus increase the retailer's ability to use specialty selling again and, generally, to widen markets.

Distributors can help the dealer to buy merchandise wisely and to promote, advertise, and sell that merchandise at a fair profit. The distributor, as the link between manufacturer and dealer, is in a critical position. Unwise merchandising policies on the part of his dealers can ruin him eventually. He will do well to cultivate dealers who will create business.

How can the electric utilities help healthy appliance merchandising in their respective territories? They can, among other things:

1. Sell at list price, if a merchandising utility.
2. Promote realistic financing.
3. Establish and enforce good installation policies.
4. Help to promote satisfactory appliance servicing.
5. Advertise and promote appliances to expand the market.
6. Above all, obtain the enthusiastic support of their top management for aggressive and expanded sales activities.

Most of us probably will agree that, while the foregoing utility practices and others like them dealing primarily with the appliance itself have been, over the years, decidedly helpful in building residential electric load, they have not been too effective in meeting the merchandising conditions since World War II. They have not reached the basic lack of retailer education and of salesmen's training.

Sales Education and Training

Many of the retailing practices to which I have referred are of such a nature that it is not possible or, perhaps, even desirable for the utility to attempt to meddle with them. They are beyond its scope; indeed, they are in entirely other fields of the electric industry. Sales education and training, however, are proper functions of the utility either alone in cooperation with its local retailers or cooperatively with the entire industry.

I, therefore, suggest to the electric utilities consideration of nation-wide activity. It will have as its broad, basic objective educational training of the retailer and of the appliance salesman.

Through an especially prepared and promoted course employing all necessary modern devices, I think this training can best involve for the retailer a fundamental knowledge of the construction, installation, operation, and servicing of electric appliances; of electricity and wiring; of the use of 230-v, three-wire circuits

in residential units; and of selling at retail at a satisfactory profit. For the salesmen there should be a training course that includes specialty selling.

I know that the Commercial Division of the Institute has a Sales Training Committee and that twice since World War II it has produced good domestic appliance sales training courses. Its services now can be invaluable to this proposed project.

I realize that education and sales training will not alone meet the competition of bootleg selling. Adverse economic conditions, however, will be a far from favorable climate for it.

My suggestion is dependent for realism and success upon correct timing, upon maximum use of existing training material and committee personnel and their expansion to meet today's requirements, and upon high quality organization and promotion by a special committee composed of the best talent in the industry. It is my opinion that the immediate future, provided, possibly, that there appear no signs of a return to large national deficit financing with its attendant substantial inflation, is the time.

At the outset of this paper, I referred to the last time, 20 years ago, that I publicly called for a national campaign to reactivate the selling, to improve the revenues, and to lift the morale of the electric industry. There is no doubt that the timing then was all right. Let me paraphrase for you a few lines from that proposal, which was the opening gun for Better Light Better Sight.

In so doing, I am essentially substituting for the words "light" and "lighting" in the text of that paper expressions involving sales and selling. If the text seems to you to be somewhat lighthearted and ebullient, blame it on the then youthfulness of the author. I assure you the words would be more stodgy and careful if written today. Perhaps the enthusiasm in this earlier text will be a good omen for my present suggestion. I quote almost:

"Would it not be a marvelous thing for the electrical industry as a whole if, next fall, every electric utility in the United States for a period of four, six, or eight months would intelligently campaign appliance merchandising education and specialty home appliance selling?

"Everybody has been economizing on the use of selling. . . When economic pressure comes, it is all too easy to fail to turn on better selling to replace other failing retail practices. True, sales volume suffers; the well-being of all branches of the industry suffers. . . But selling has been used with too great economy, our income is beginning to reflect this condition, and we are not happy about it.

"Is there any one thing that the utility industry could do as a whole that would bring back revenue more quickly than, over a sustained period of business readjustment, to resell the entire industry the value of the use of real specialty selling? . . . Why not a national selling campaign on selling next fall—each utility doing its own job in its own territory, in whatever is the best way in that territory; . . . every appliance salesman learning or relearning and never forgetting specialty sales methods, and going to the market to

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Our Job Is to Serve

(*Continued from page* 150)

rates should be subject to regulation conforming with provisions fixed by state legislatures or city ordinances. With few exceptions the states have regulatory commissions. Under the regulation of these state commissions, the companies have been responsive to local needs and requirements of their customers.

By act of Congress there is a Federal Power Commission which also has regulatory powers, and it has been well demonstrated that where there is overlapping regulatory jurisdiction, a Federal agency, backed up by Federal court decisions, often assumes the dominant role, and the state regulatory body becomes secondary, if not subservient, in its position.

It should be accepted, as a basis of interrelations between the Federal and state governments, that the regulation of electric light and power companies should be by the state or local agency, thus preserving states' rights, and that the regulation exerted by the Federal government should be reduced to that minimum that is fully justifiable in the interest of the customer because either the state, or a compact of states, lack jurisdiction over some part of the business. Were this broad principle adopted, there would be no justification in the case of licensing dams on navigable streams, or tributaries thereof, for the Federal government to impose any conditions on such licensing relating directly or indirectly to rate regulation, but the conditions would relate solely to assuring a proper protection of the bona fide interest of navigation. Further, the term "navigation" should be redefined to exclude waters where navigation, in fact, is nonexistent, or is confined to a few pleasure craft, since in such latter situations there is no need for Federal control. The entire matter would then be and would properly be the concern only of state and local governments.

We would welcome steps by the Federal government to reduce the burden of overlapping regulation by simplifying its requirements and by leaving more of the job of regulation exclusively with state commissions. This overlapping regulation is costly to the companies and is reflected in their charges to their customers. Although some relief can undoubtedly be obtained by voluntary Commission action under existing statutes, amendment of such laws is necessary for adequate relief in the public interest.

To sum up, we have no fear of government competition per se. We do have deep fear of the destructive force of government taxation, combined with the continuing policy of Congress permitting government bureaus and agencies to compete unfairly in the power business. These problems of government in business and the preservation of our system of free enterprise must in the final analysis be adjudicated in the court of public opinion. The solution will be made easier and will come sooner when the public is fully advised of the problems and inequities that exist and how the public will be benefited by their fair and proper solution or elimination.

Hot and Cold
(Electric Space Heating and Air Conditioning)

M. E. Skinner
Vice President, Union Electric Company of Missouri

An address before the Residential Sales Section, 20th Annual EEI Sales Conference, Chicago, Ill., April 6, 1954

MY subject, "Hot and Cold (Electric Space Heating and Air Conditioning)," might better be called "Weather and Its Effects Upon Load and Load Building."

It is a complex subject. To those concerned with power production, plant capability, or equipment overhaul schedules, weather effects upon load mean one thing. They help determine how to schedule operation of equipment and to predict load levels as an aid in scheduling interchange power.

To top management, they mean something else. They affect short-range forecasts of earnings, material requirements, and expenses. They may affect long-range forecasting and timing of system development programs.

To the Sales Department, they have another meaning, for, as they alter system and class load factors, they may affect rate decisions. They provide an everlasting challenge to build compensating loads to achieve improved load factors and earnings.

The whole history of the electric industry has demonstrated the importance of building compensating loads, temperature affected or not. It is clearly important at all times to keep alert to developing situations and constantly to review load building efforts to direct them in all markets toward selective and balanced load building. No better illustration from the past exists than in the many residential sales programs aimed at maintaining the most advantageous ratio of domestic electric range to water heater sales.

To determine action, it is necessary to review your own situation. Union Electric did this. Our most recent review suggested that some changes were due.

Analyses Made

Our Power Production Department has made statistical analyses of the effects of hot weather on system load each summer since 1936. It has made similar analyses of cold weather effects for a somewhat shorter period of time.

These studies indicate that hot weather effects manifest themselves commencing at temperatures above 72F and cold weather effects at temperatures below 60F, as shown in Fig. 1. For example, during the summer of 1953 there was a daily increase in kilowatthours of 130,000 kwhr per degree above a mean temperature of 72F. When we get a sizzler in St. Louis, we must be prepared to carry added load of from 120 to 135 mw. For the winter of 1952-1953, there was a daily increase of 20,000 kwhr per degree below a mean temperature of 60F. A zero day adds about 50,000 kw as compared to a mild day.

The indicated maximum 24-hr average load attributable to hot weather based on a 25-deg differential above 72F indicated a growth of 20,000 kw of such hot weather load effect for 1953 over the previous year. This was interesting inasmuch as we obtained in reported air-conditioning load during that year 22,785 kw.

What has been happening to our summer load has been happening to many other electric companies in our climatic belt. It happened earlier to many of the southern and southwestern companies. As the public acceptance of air conditioning moves northward, it will happen, at least to some degree, to systems north of us. Union Electric's air-conditioning load growth since World War II is shown in Fig. 2 and is typical of what has been happening in many other areas. In our territory more

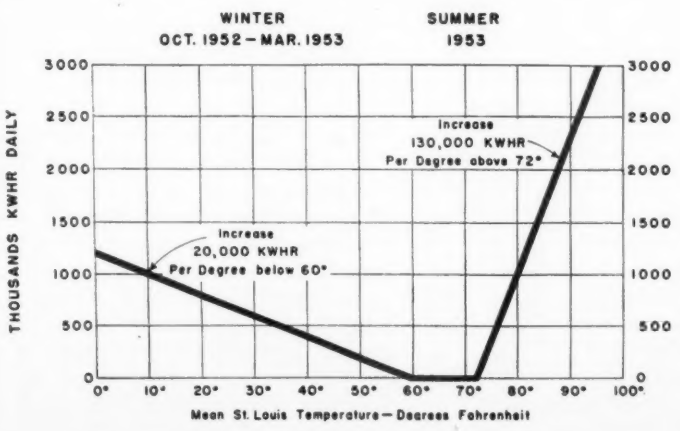


Fig. 1—Effect of Temperature on System Load

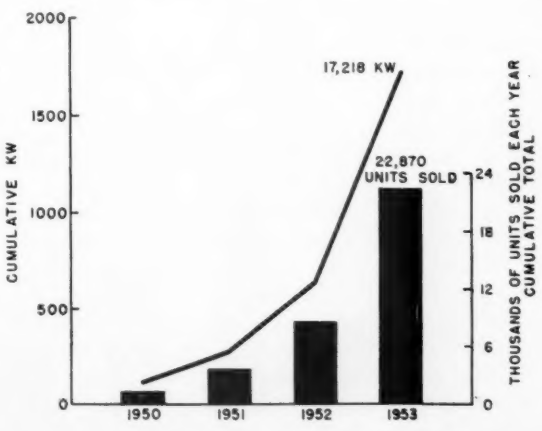


Fig. 2—Growth Trend of Room Air Conditioners

room air conditioners were sold in 1953 than in all the three preceding years.

A recent study of the monthly variation in our native kilowatt and kilowatthour load for the period 1947-1953, inclusive, indicated, as shown in Fig. 3, that the load during the second and third quarters in each year is increasing at a rate about 1.2 times the rate of increase during the first and fourth quarters. In our case the kilowatthours are increasing faster than the kilowatts so as to improve system load factor.

Our system peak in 1953 occurred on June 29. While our December peak was close to the June peak, the studies we have made indicate that if the rate of seasonal growth persists, our annual system peak is apt to continue during the summer months.

A study of our load versus capability situation projected for the year 1958 shows that by that time we will have a tighter situation with respect to scheduling equipment out of service for overhaul during July and August than in other months of the year.

An examination of these facts relative to our system load characteristics clearly indicates that we can expect an accelerating trend toward a definite summer peak of increasing disparity with our winter peak unless we take steps to bring up the winter load. Clearly indicated also is the importance of taking a good look at the characteristics of that load which is most contributing to the establishment of summer peaks as well as the characteristics of winter loads available for development.

Residential Air Conditioning

Air conditioning is the major load accounting for our swing toward summer peaks. Residential air conditioning and in particular residential room conditioners represent certainly for the next few years the major summer load increases. When we take a look at the residential air-conditioning load by itself we find:

1. Low annual load factor
2. Low diversity
3. Resultant high cost to serve

When we look particularly at room air conditioners we find that low power factor compounds our problem.

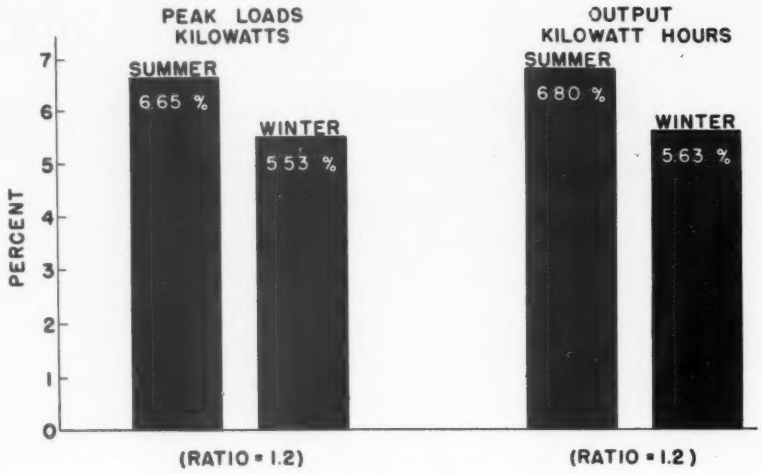


Fig. 3—Summer vs. Winter: Seven Years Average of Monthly Increases in Peak Loads and Kilowatthour Output Over Previous Year

Further, as we analyze the impact of this load on our facilities, we find that the peak load occurs at the time of maximum summer temperature, at which time the high ambient temperatures limit the capacity of distribution lines and transformers to about 75 per cent of their wintertime capacity. Generation and transmission facilities are similarly affected and steam generation capacity is further reduced as a result of higher condensing water temperatures. A further examination of the room air conditioners presently offered for sale discloses full load power factors ranging from as low as 54 per cent to a high of around 80 per cent.

The combination of low power factor and lack of diversity of these room air conditioners brings about serious problems both for the customer and the utility with respect not only to costs but to quality of electric service.

Now, don't get me wrong—we welcome the air-conditioner boom; in fact, we feel that we have contributed to it in our area since we have actively promoted it in all markets from its very beginning. We have done that in full confidence that we can match its low load factor, high demand characteristics with compensating loads. Our review of the situation indicates that:

1. Residential air conditioning has just scratched the surface.
2. Room air-conditioner sales will increase at a rapidly expanding rate for the next few years.

We concluded that because of the nature of the room air-conditioner load, it would be vital to us and would be in the interest of all concerned to encourage improved efficiency and power factor of room air-conditioner motors. We concluded that in view of the deluge of such equipment about to descend upon us, the time to act was now.

Memorandum Distributed

In January we distributed widely to our air-conditioning distributors, and all room conditioner, motor, and compressor manufacturers of whom we knew, a memorandum stating our intention to enforce, commencing in 1955, a service rule we have concerning apparatus having electrical characteristics that adversely affect our distribution system. I would like to call your attention to the main points of this memorandum, and I quote:

"PRESENT ROOM AIR CONDITIONERS NEED IMPROVED POWER FACTOR

"Many room air conditioners now on the market have power factors of 70 per cent or less. The growing use of these low power factor room air conditioners is resulting in needlessly overloading customer's and company's circuits and facilities and is resulting in low voltage conditions at the unit which give rise to customer dissatisfaction with room air conditioners and to increasing service problems for you." We pointed out that:

"There are certain definite benefits that will accrue to the industry as a result of manufacturers taking steps to improve the power factor of room air conditioners.

"*A. Benefits to the Customer*

"Improved voltage at the appliance outlet resulting in better and more efficient operation of the room air conditioner and better television reception.

"Possible avoidance of additional wiring costs. . . .

"Reduced electrical losses in house wiring.

"*B. Benefits to Manufacturer, Distributor, and Dealer*

"Increase in number of sales as a result of fewer or less extensive wiring changes being required.

"Increase in customer satisfaction, enhancing reputation and prestige and bringing repeat and customer referred business.

"Reduction in service calls.

"Reduced possibility of claims and damage suits.

"Increase in profits as a result of more sales, few complaints, less returned merchandise.

"Higher sales ticket prices. (Power factor correction embodied in the unit can be sold at a profit to the manufacturer, distributor and retailer instead of forcing others to furnish it or forcing customer to provide special circuits and other wiring changes.)"

I am glad to report that our suggestion has been received with good grace by the manufacturers, and this matter of improving the electrical characteristics of room air conditioners is receiving active consideration by the joint ARI-NEMA-EEI Committee.

So much for the cold part of my subject, which has been pretty hot for many of us; now let's look at electric space heating. Space heating is inseparably linked with air conditioning. Year-round air conditioning can best be achieved electrically with the heat pump, which, as you know, is making real strides in many parts of the country. We have 14 residential heat-pump installations operating in our territory.

A heat pump is automatically a self-compensating load. Its growth and acceptance is inevitable. Its rate of growth will be greatly accelerated when:

1. The rising production of packaged units brings lower installed costs.
2. Air-to-air units are improved to the point that economically sized units can provide heating under 0- to 70-F design conditions without the use of supplementary resistance heating.
3. Chemical or solar heat-storage methods are developed for use with heat-pump systems.

Of course, where water is readily available as a heat source or where wells of necessity have to be drilled for a general water supply, water source heat pumps can be installed at a sufficiently low initial cost to compete with other year-round air-conditioning methods now.

In most of the area we serve the water table is very deep, cost of wells high, and our heat-pump installations have all been ground coil jobs.

Electric Resistance Space Heating

When we ask ourselves the question "What winter loads can we accelerate to compensate for air-conditioning-caused summer peaks?" the answer we come up with is this. "Pending the expansion of the heat pump—our best opportunities are lighting and electric resistance space heating." The lighting load opportunities are obvious. I shall, therefore, confine myself to the matter of electric resistance space heating. Electric resistance space heating for auxiliary and supplementary purposes has always been considered a good load. We have promoted it for many years.

Electric resistance space heating for the entire heating of residences or buildings is a winter load that by itself has almost all the undesirable characteristics of the air-conditioning load except that:

1. It is a unity power factor load.
2. Transmission and distribution facilities during the wintertime can carry from one-third to one-half more load than the same facilities can carry during the period of high summer temperatures. As a compensating winter load to match the increasing summer air-conditioning load, the combination appeals to us as having many advantages.

We have been fortunate in that electric space heating in our area has been intelligently promoted by a number of good distributors for several years. Fig. 4 shows the rate of growth of complete residential space heating installations and resultant connected load. The slower rate of increase evident in 1953 was the result of:

1. Relaxation of limitations on the use of competing natural gas for space heating.

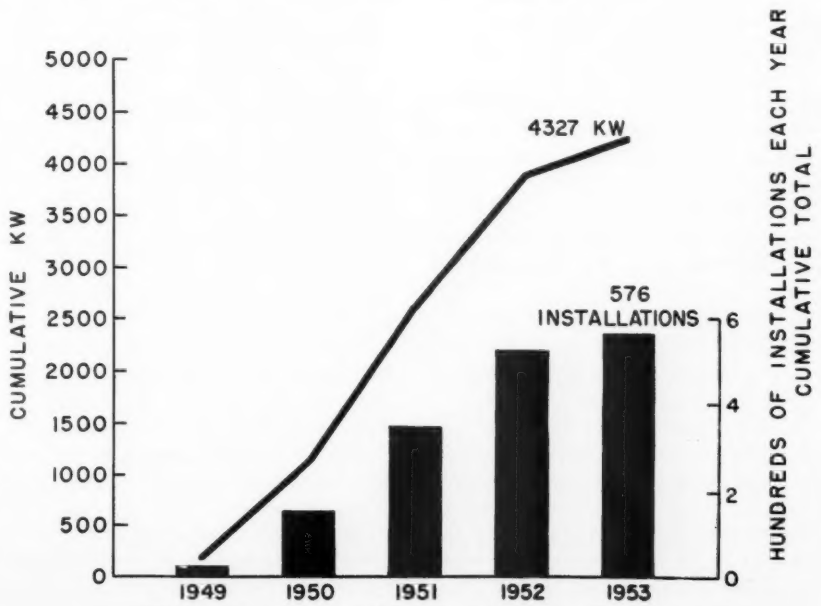


Fig. 4—Growth Trend of Electric House Heating

2. The pendency of rate proceedings, which resulted in some uncertainty as to what the charge of electricity would be.

A survey of a large number of users provided us with this rather interesting information:

	Are you satisfied with the heating performance?		Are you satisfied with the cost of operation?		Would you recommend this to others?	
	Yes	No	Yes	No	Yes	No
Percentage	89	11	53	47	83	17

Note that the percentage of users who would recommend it to others is higher than the percentage satisfied with the cost of operation. Of those who were dissatisfied with heating performance, 67 per cent did not have fully insulated homes. Of those who were dissatisfied with cost of operation, 67 per cent did not have fully insulated homes. Of those who said they would not recommend it to others, 77 per cent did not have fully insulated homes.

Promotion Stepped Up

A consideration of all these factors led to the decision in 1953 that we would step up our promotion of electric space heating for auxiliary and supplementary purposes and for complete space heating in all markets in fully insulated structures.

Our first step was to compile a "Guide to the Use of Electricity for Space Heating in Homes, Factories, Commercial and Farm Buildings." This booklet provides our answer to the questions: What are the electric space heating methods? What types of equipment are available? What are the insulation requirements? What will it cost to use electricity for space heating? What are the advantages of electricity for space heating? How to get the necessary equipment?

All distributors of space heating equipment were given an opportunity to review the proofs of the booklet.

In February of this year we arranged a meeting to which we invited building, electrical, heating and air-conditioning contractors; insulation and electric supply house representatives; architects and consulting engineers; mortgage bankers and real estate company personnel; and FHA, VA, and electrical inspectors. At these meetings, our promotional plans on space heating were described. Those who attended were able to see exhibits of 15 manufacturers of space-heating devices suitable for auxiliary, supplementary, and complete space heating.

All of these people were given the guide booklet. It is being sent to all new home builders as reported by Dodge Reports and is being personally delivered by commercial and industrial men to their customers. Newspaper advertising tied in with the "Add-A-Room" theme will also offer the booklet in May and September.

We have under consideration a budget billing plan to equalize customer bills for electric space heating.

No discussion of temperature compensating loads would be complete without an emphatic mention of the importance of room air conditioners equipped with electric heating elements, or with a reversing valve to permit operation as heat pumps for auxiliary and supplementary purposes during the spring and fall months and the many days during the winter when such room conditioners can eliminate the need for starting up a central heating plant.

I have outlined to you my own company's analysis of the problems presented by weather affected loads —hot and cold—the action it has determined upon, and part of its program.

It is inspiring to me to see the tremendous increase in the number and quality of air-conditioning and space-heating devices that electrical manufacturers have come up with to bring to our customers new concepts of electrical living. But there are growth problems which these manufacturers face and which we face, not the least of which is the matter of wiring.

Air conditioning and space heating require that our sights be greatly lifted on this matter of wiring. In accomplishing this correction, the customers provide what perhaps will be the key to the accomplishment of what we have all been striving for. When capacity is put into a home for electric space heating, that home automatically has all the capacity it needs for air conditioning. If capacity is put into the home for air conditioning, that home has capacity available to use in winter for auxiliary or supplementary electric heat, and those homes that are electrically heated and air-conditioned will "for certain" do everything else electrically.

Detroit Edison Employees Receive Dow Awards

THE Detroit Edison Co.'s annual Alex Dow Awards were recently presented to five of the company's employees by Detroit Edison President Walker L. Cisler. The winners were Charles Einfeldt, Piping Division Engineer; J. Douglas Elliott, Billing Department Superintendent; Karl J. Makinen, General Supervisor, Relaying; James E. Mulavey, Field Engineer; and Frank L. Taylor, Senior Electrical Apparatus Engineer.

The awards were established in 1946 and named in honor of Alex Dow, who headed Detroit Edison for 28 years. Each award consisted of a citation, a gold lapel pin, an engraved watch, and five shares of company stock.

Mr. Einfeldt was honored for work done outside regular duties in giving vocational counsel to young Detroit Edison people and encouraging them to further their educations and personal development.

Mr. Elliott was cited for outstanding office management and building of employee morale through the reduction of monotony and fatigue in mechanized office work. He is the author of a nationally recognized study entitled "Increasing Office Productivity by Job Enlargement."

Mr. Makinen was honored for developing electrical circuit protective devices that speed up restoration of service after interruptions caused by overloads such as those occurring after thunderstorms.

Mr. Mulavey was cited for finding a way to use regular local television broadcast signals to determine the phases of circuits when high-voltage lines are being connected.

Mr. Taylor received his award for development of an electronic voltage regulator for power-plant use.

How Significant Is a Computed Depreciation Reserve?

George T. Logan
Philadelphia Electric Company

A paper presented before the Depreciation Accounting Committee Session, National Conference of Electric and Gas Utility Accountants, Boston, Mass., April 13, 1954

THERE has been a tendency on the part of some individuals and some regulatory bodies to pursue a specious exactitude in determining amounts that should be in a depreciation reserve at a given time. The results of scrupulous calculations too often have been accepted at face value and translated into requirements for substantial adjustments of the depreciation reserve. In other instances, the result of a pseudo-scientific computation of the amount of accrued depreciation has been utilized for rate base purposes. Is the appearance of accuracy and precison an illusion?

After time-consuming studies, the New York Commission in 1948 found that the depreciation reserves of Niagara Mohawk Power Corp. were deficient by approximately $44,000,000. The commission ordered the company to adjust its book reserve upward by this amount and increase the annual accruals for depreciation to rates specified by the commission. Only five years later, the commission staff agreed with the company that the book reserve was $16,000,000 in excess of the required reserve! Could the results of computations of the required reserve have been equally significant at both times?

Straight-Line Basis Long Used

For many years the Bell Telephone System has been accounting for depreciation on a straight-line basis. Continuous and extensive studies have been made as a guide to judgment in adjusting rates for accruing depreciation. Here is a case where consistent accounting treatment, based on extensive study of the average life expectancy of the various properties, has been applied from the beginning. One would, therefore, expect that the results reflected on the books would automatically reflect the required or computed reserve.

However, studies of the required reserve over the last 20 years indicate considerable variation from one period to another between the book reserve and the computed reserve. In some years the book reserve has been less and in other years more than the computed reserve.

Some regulatory authorities have recognized that estimates of depreciation are inexact under the best of conditions. For example, the California Commission has gone on record as recognizing this difficulty and, as a practical solution to attaining the objective of recovering the original cost of plant (less estimated net salvage) over the useful life of the property, has adopted the remaining life depreciation method.

Why then does a computation, made with great punctiliousness, produce an answer that is not necessarily correct or infallible? Is the mathematics incorrect?

The Four Required Assumptions

The answer is that there is nothing wrong with the mathematics. But, the results depend upon a combination of at least four assumptions, none of which can be estimated with precision. Accordingly, the rest of this paper is devoted to a discussion of these assumptions and develops examples of their effects on the final computation.

A computed reserve assumes:

1. That the property, for which the computation is made, will experience a specified average life span;
2. That the mortality or dispersion pattern is known, i.e., what percentage of all units installed in a given year will survive at each age;
3. That the presently surviving units of property, for which the reserve is computed, have precisely conformed to assumptions 1 and 2; and
4. That the future amounts of net salvage (or removal cost) of the presently surviving units are now known.

Average Life

To be objective, any estimate of the probable average life of present plant must be made in two steps calling for:

1. Life analysis, requiring statistical analysis of past retirement experience to discover what inferences can be drawn. (Whether or not such inferences are significant depends upon the data available, whether or not there is a consistent, homogeneous relationship between retirements and age, and whether or not there have been material changes in conditions affecting retirements.)
2. Development of judgment estimates of average life for existing plant, based upon the life analysis results, together with all other known factors.

The methods of analyzing past experience and the difficulties of drawing accurate conclusions from the results have been ably set forth elsewhere.[1] It is sufficient for the purposes of this paper to point out that reliable data are often nonexistent or, if existent in certain areas, are not on a uniform basis. And even if they can be placed on a uniform basis, their statistical reliability may be doubtful because there just hasn't been sufficient experience with long-lived property.

As part of the second step, a strong element of judgment is required in interpreting past experi-

[1] *Methods of Estimating Utility Plant Life*, Publication No. 51-23, 1952, Edison Electric Institute.

ence for the purpose of estimating the probable life of existing plant. Even if past experience can be determined with certainty, there is no assurance that it will be repeated in the future. Who can say what economic and technical events will develop and influence the remaining life of our property? What effect will the advent of atomic energy have upon the life of boiler plant equipment? Lives of manufactured gas production plant as experienced in the past become meaningless upon complete conversion to natural gas. Thus, average life at best is an estimate and, though determined with care and good judgment, can be considered only a reasonable guide and not an exact fact. The actual life span will not be known until after all units have been retired in the future.

Specified Span Necessary

However, in computing a depreciation reserve it is necessary to assume a specified life span. Under the age-life approach, we in effect say that (1) from the time the property was installed, we should have been accounting for depreciation by a particular method, (2) the property is now a certain age and we should, therefore, have accrued in the reserve a particular amount of dollars, and (3) if we continue on this basis until the property is retired exactly as we have assumed, the reserve will exactly equal the cost of the property (or other desired basis).

Group-Method Computations Used

For utility property, the computations usually are made for many units instead of each single unit—by the group method, which recognizes that the individual lives of the units will vary from the group average (i.e., dispersion). Based on this dispersion, it is possible to develop depreciation reserve factors that show the computed reserve in per cent of surviving units at each age, based upon an assumed average life. For purposes of this study, the examples utilize straight-line reserve factors based upon the generally used standard Iowa-Type survivor curves.[2]

There are three different types of Iowa curves that represent different mortality characteristics:

1. L curves—in which the greatest frequency of retirements occurs before the average life;
2. S curves—in which the retirements are symmetrical about the average life; and
3. R curves—in which the greatest frequency of retirements occurs after the average life.

Each type of curve is further identified by a number representing the degree of curvature, the curvature progressing from flat to sharp as the numbers progress. Thus, an S_2 curve is a fairly flat, symmetrical curve.

Obviously, the amount of computed reserve will vary if the average life estimate varies. Suppose we aren't sure whether the electric meter account will realize an average life of 30 or 35 years. How much difference will there be in the computed reserves?

The following table sets forth the various depreciation reserve factors for surviving units of the ages indicated in Column (A). Columns (B) and (C) reflect the factors for an Iowa S_2 survivor curve for units having an average life of 30 years and 35 years, respectively. Columns (E) and (F) reflect the factors for an Iowa R_2 survivor curve for units also having an average life of 30 years and 35 years, respectively.

As shown by the table, the differences between the amounts of the reserve will vary according to the age of the plant, with the difference ranging up to 15.6 per cent for the Iowa R_2 curve assumed in this particular example (Column [G]).

An inspection of the reserve factors in the table shows another source of variation in the amount of reserve. Supposing we aren't sure of the mortality characteristics but are sure of the average life. Again we find in the table that there is a variation between the amount of the reserve for an Iowa S_2 and R_2 curve (Columns [B] v. [E] or [C] v. [F]). And if we aren't sure of either the average life or the mortality characteristics, the difference in reserves might easily be in excess of 30 per cent as shown in the table.

This difference is greatest for plant which is relatively young in relation to the average life, a situation that is common for electric utilities that have experienced recent rapid growth of plant.

Reliable Mortality Characteristics

Can mortality characteristics of property be determined with accuracy? Where accurate records of past experience are suitable for statistical analysis, tests can be applied to determine if there is sufficient data to provide reliable information and if it is uniform. The usual procedure is to fit an empirical curve, such as an Iowa curve, to a series of points representing past experience. All too frequently such a curve can only be fitted to a series of points representing a partial period of experience (a stub survivor curve). Though one type of curve may appear to fit well, so will other types. Or the experience may cover the greater part of the curve, but the points representing past experience may be so scattered that any number of empirical curves may fit equally well.

Must Try for Accuracy

In practice, it is almost impossible to determine accurately the mortality characteristics of each and every one of the numerous plant accounts. Yet the attempt must be made in order to compute the depreciation reserve applicable to all of the accounts. And if we think we know what the past experience has been, do we know how it has changed? Without knowing how it is chang-

Age of Surviving Units (Years)	Iowa S_2 Curve: Per Cent Reserve Factor with Average Life of 30 Years	Iowa S_2 Curve: Per Cent Reserve Factor with Average Life of 35 Years	Iowa S_2 Curve: Per Cent Difference (B-C) ÷ C	Iowa R_2 Curve: Per Cent Reserve Factor with Average Life of 30 Years	Iowa R_2 Curve: Per Cent Reserve Factor with Average Life of 35 Years	Iowa R_2 Curve: Per Cent Difference (E-F) ÷ F	Maximum Per Cent Difference (B-F) ÷ F
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
15	46.9	41.2	13.8	41.6	36.0	15.6	30.3
30	74.8	68.6	9.0	72.1	65.0	10.9	15.1
35	80.8	74.6	8.3	79.7	72.3	10.2	11.8
45	90.0	84.3	6.8	90.1	83.8	7.5	7.4

[2] It is recognized that a true mortality curve representing actual experience can sometimes be developed and that other generalized types of curves are in use.

ing, can we reasonably say that we expect our present property to have such and such mortality characteristics? Yet in order to compute a depreciation reserve, we must assume a mortality characteristic—the second assumption necessary to the computation of the depreciation reserve.

The type and degree of curvature influences the computed amount of the theoretical reserve. For example, the straight-line reserves for three different type curves would be as follows:

Age of Surviving Units in Per Cent of Average Life	Reserve Factor (Per Cent)			Maximum Per Cent Difference in Reserve (Maximum Difference Among B, C, or D ÷ Minimum of B, C, or D)
	Type L_2	Type S_2	Type R_2	
(A)	(B)	(C)	(D)	(E)
50	43.1	46.7	41.4	12.8
100	60.9	74.7	72.1	22.7
125	67.2	83.0	82.5	23.5

As seen from this example, the per cent variation among reserves is as great as 22.7 per cent (Column [E]) when the plant has reached its average life and may be even greater in later years. Similarly, a change in the degree of curvature, for the same type curve also affects the reserve computation. This is shown by the following comparison for an Iowa R_2 and R_4 curve:

Age of Surviving Units in Per Cent of Average Life	Reserve Factor (Per Cent)		Per Cent Difference in Reserve (C-B) ÷ B
	R_2 Curve	R_4 Curve	
(A)	(B)	(C)	(D)
50	41.4	48.8	17.9
100	72.1	85.3	18.3
125	83.0	93.5	12.7

Again it will be seen (Column [D]) that the difference between reserves increases with the age of plant, with the difference being greatest in this example when the age of the surviving plant equals 100 per cent of the average age.

As previously mentioned, computations of the depreciation reserve for masses of property require assumptions as to average life and mortality characteristics. Having done this, we in effect have said that every unit of property will adhere to a mathematical formula expressed as a survivor curve—our third assumption. Need we ask if they will? We know from past experience that they didn't, because we tried our best to fit a survivor curve to scattered points in order to express the past experience as an empirical relationship.

True Reserve Not an Exact Amount

Statisticians can measure the conformance or average of individual deviations from the mathematical curve that is used as the basis for estimating the depreciation reserve. They can show that the greater the departures from the assumed survivor curve, the greater the actual reserve may vary from the estimated. Thus the true depreciation reserve will lie between limits and will not be an exact amount. With reasonably good conformance, it can be shown that the true depreciation reserve can vary as much as 20 per cent either side of the reserve computed on the basis of the empirical curve.

In actual experience, it is impossible to find good conformance for each utility plant account. In addition, we have no way of knowing that future deviations of present units will follow the pattern of the past. Under such conditions, it would appear to be more realistic to estimate limits of the reserve instead of computing one amount, as is the common practice.

Net Salvage or Net Removal Cost

In computing a depreciation reserve, consideration should be given to the amount of salvage to be realized and the removal costs to be incurred at the time property is to be retired. Such consideration must be given, because the estimated amount ultimately to be accrued in the depreciation reserve, when all units of present property are eventually retired, should theoretically equal the difference between the total cost of all of the units and their net salvage or net removal cost if the accounting objective is to be attained. The determination of such net salvage or net removal cost is the fourth estimate required to compute a theoretical depreciation reserve.

In practice, it is usual to find that analyses of past experience show no uniformity from year to year in the rate of net salvage or net removal cost. Such costs are usually "lumpy" and vary substantially. One analysis of a large gas property over an 11-year period showed a range of from 12 per cent net salvage in one year to 32 per cent net removal cost in another with no indication of a trend. With unknown future changes in price levels and costs, how can a precise estimate be made now of the costs to be incurred in the future?

In the case of the gas property just cited, the computed depreciation reserve could be adjusted by factors ranging from 88 to 132 per cent, to produce a range of nearly 50 per cent in the amount of computed depreciation reserve. In this case, the analysis showed a composite average for the 11 years of 6 per cent net removal cost. Judgment would dictate that the average was more indicative than the extremes. But judgment would also recognize the fact that future costs would differ from past costs and that only an approximation could be made of the adjustment factor applicable to the computed depreciation reserve, since major variations from the average were to be expected.

An Illustrative Example

It has been pointed out that a computation of the theoretical depreciation reserve involves four separate assumptions and that as a result there can be a wide range in answers. Let's look at an actual example of the development of the theoretical straight-line depreciation reserve for just one gas plant account, "Account 362—Meters." This particular account was selected as an illustration because it was one of the few primary accounts analyzed which had sufficient experience to indicate the approximate average life. Furthermore, of all of the primary accounts, it was one of the few truly mass accounts best representing large groups of units apparently homogeneous as to type and character.

The dollar balance of the account was nearly $3,000,000, representing the original cost of 162,305 meters of three basic types (5-light, 5A, and 5M).

Because of limitations in the available data, analyses of past experience with respect to average life and mortality were approached in two ways in order to check the results of one method against the other. Both the actuarial and simulated plant record methods were used. Because of the difficulties of stating past retirements on a uniform basis in terms of present original cost, the actuarial method was necessarily confined to units instead of dollars. The annual rate actuarial method was used to analyze retirements over a ten-year period, to determine the survivorship characteristics of each type of meter as well as all types combined. The results of each analysis coincided closely, with only the outmoded 5-light meters showing complete experience. The conformance was excellent, and an Iowa R_1 survivor curve with an average life of 41 years (41 R_1 Curve) was clearly indicated.

Simulated Plant Record Method

In order to utilize the simulated plant record method, it was necessary to adjust the book balances and additions so as to place them on a uniform present original cost basis. The farther back in time such adjustments were made, the less reliable they became. Accordingly, it was felt desirable to confine annual balances to a 19-year period and annual additions to a 40-year period. Upon analysis, it was found that the results were not entirely satisfactory. Though application of the experience test showed "good" experience, the conformance test indicated "poor." The best Iowa curve fits ran as follows:

1st — 30 R_1
2nd — 31 S_0
3rd — 32 L_1

Though the results indicated a flat survivor curve, they did not clearly indicate whether it was right or left moded. The dispersion characteristics were questionable.

Thus, the results of the analyses of past experience were varied and there was no clear cut single answer —only a range of answers. In the light of these findings, and after a review of the retirement policies contemplated for this account, it was concluded that probably an Iowa 35 R_2 would best represent the average life and mortality characteristics to be expected of the account. This decision resulted in five different estimates, all reasonably close. How great a variation would there be in the amounts of theoretical depreciation reserves if computations were made on each basis?

Detailed computations of the straight-line reserves on each basis are summarized as follows:

Iowa Curve Assumed	Computed Reserve: Per Cent of $2,915,251 Account Balance	Computed Reserve: Amount (Dollars)
41 R_4	27 7	808,100
30 R_1	25.8	753,200
31 S_0	25.1	732,600
32 L_1	23.2	676,100
35 R_2	26.7	777,000

Though the assumptions appear to be close, the results dependent upon these assumptions scarcely could be considered to be close: the 19.5 per cent difference between a $808,100 reserve and $676,100 reserve is substantial, and the $132,000 amount of the difference is also substantial.

The foregoing results are not final, because consideration must be given to net removal cost. Actual analyses of past experience indicated substantial variation, but a range of 0 to 10 per cent net removal cost appeared to be a reasonable expectation. Adjustments of the minimum and maximum reserves for net removal cost further increased the spread between reserves as follows:

	Reserve before Adjustment for Net Removal Cost (Dollars)	Net Removal Cost Adjustment Factors (Per Cent)	Reserve after Adjustment for Net Removal Cost (Dollars)
Minimum	676,100	100	676,100
Maximum	808,100	110	888,900

The difference between the maximum and minimum estimated reserves for this one account could thus be as great as $212,800!

In the light of the foregoing, it can be seen readily that computations for electric or gas depreciation reserves as a whole can represent a very wide range of results that are estimates at best. To accept a single computed reserve study as the "gospel" basis for forcing the book reserve account into line with the computed figure is similar to plotting a trend line by using only one point. More points are needed as guides to judgment when depreciation reserves and rates are being reviewed. To be significant, such points can only be obtained over a period of years by making repeated estimates of reserves.

EEI Publications

Cable Operation—1951

EEI Pub. 53-16. A joint report of the AEIC Committee on Power Distribution and the EEI Transmission and Distribution Committee. 17 pages. Price: 70 cents to members; $1.75 to nonmembers.

This report, with detailed tables and charts, is an annual statistical study of the cable, joint, and termination operation record for oil-impregnated paper-insulated cable. Fifteen companies, each operating 200 miles or more of high-voltage cable, submitted the data from which this report was compiled.

A-C Network Operations—1950-1952

EEI Pub. 54-5. A report of the EEI Transmission and Distribution Committee. 35 pages. Price: 75 cents to members; $1.90 to nonmembers.

Data for this report, concerning operations on 381 networks in 144 localities, were submitted by 57 companies and, in general, pertain only to problems of current practice and interest. The report follows closely the form of the 1947-1949 report to facilitate comparisons of results.

Protection of Land Areas for Industrial Development

EEI Pub. 54-3. Volume One, Number Four, an "Area Development Suggestions" report prepared by the EEI Industrial Development Subcommittee of the Area Development Committee. Price: 40 cents to members; $1.00 to nonmembers.

This report presents the results of a survey of electric company experience in the protection of land for industrial development purposes. Twenty-one representative companies throughout the U. S. responded to the survey questionnaire on land protection practices. The questions asked and answers obtained have been reproduced to show a composite picture of practices carried on across the nation.

Public Utility Billing

An Ideal Spot for Statistical Quality Control

Walter W. Merrill
Price Waterhouse & Company

AUTHOR'S NOTE: *If all good ideas had been simple, noncontroversial, and of obvious advantage (with no concomitant disadvantages or problems), they might have been accepted with greater alacrity than has been their lot in the past. Many have not been, and their progress has not been easy. The writer suffers no illusions that the idea discussed in this article will be universally welcomed with open arms. Nevertheless, he feels that it is definitely worth consideration and would like to start it on the path toward eventual acceptance or rejection.*

STATISTICAL quality control, now an accepted tool of industry, is gradually making a place for itself in the well-managed office. A natural spot for its use is in the field of public utility billing where there are so many repetitive operations involving individually small amounts.

Involves Checking Samples

In industry, statistical quality control is used as an aid in keeping the dimensions or other important characteristics of manufactured products within desired control limits. The situation is no different in the office where the manufactured product is simply a batch of business documents such as customer invoices and the characteristic is the per cent of errors. Statistical quality control involves checking samples as opposed to checking the entire output. Public utility office managers who make a 100 per cent check of all customer invoices may be interested in the experience of some office users of statistical quality control who have found that:

1. A goodly number of errors are not caught, even with a 100 per cent check.
2. The per cent of original errors made tends to decrease significantly under the operation of a well-administered quality control program making use of statistical and other techniques.
3. The cost of checking, using statistical samples instead of the 100 per cent check, is reduced many thousands of dollars a year.

Let us see now what can be expected from a statistical quality control program and how easily such a program can be put into effect.

Suppose we are a public utility with 500,000 residential customers and an average daily billing volume of 25,000 bills. We are checking our bills 100 per cent and have records indicating an error rate of about one error per 1000 bills. Our average error is a small one, and we have perhaps considered the elimination of checking altogether. However, we are reminded of the day when a new girl became confused over the location of the decimal point and made 100 errors in a single day—and they weren't all small; and also of the time one of the machines broke down and produced another large batch of errors.

This is just where statistical quality control comes into the picture, for it is primarily a device for distinguishing between random chance errors and what the statisticians call assignable errors. In our examples above, the new girl's misunderstanding and the machine's breakdown gave rise to assignable errors. The one error per 1000 more or less day in and day out represents the random chance error.

Set Random Error Limits

Using statistical sampling techniques, we can set random error limits for samples of different sizes. Then, when the number of errors in a sample exceeds the limits, we can say with some assurance that an assignable cause of error has crept into the picture and take immediate steps to eliminate it. The formula for establishing these error limits is a relatively simple one and is given, along with an example of its use, in the appendix at the end of this article.

The next question is an obvious one. How large a sample must we take? Many of you will say, "What per cent should we test?" Actually there is no particular per cent at all since the size of the sample depends not on the size of the total job as much as on the average error rate. In general, it is desirable to have a sample sufficiently large to include at least one error. Obviously, if our average error rate is one per 1000 and an assignable cause boosts it to one per 100, a sample or 25 or 50, or even 100, might still fail to give us the warning we desire. With an error rate of one per 1000, a sample size of 1000 to 5000 would seem to be indicated. On the other hand, if the error rate is one, two, or three per 100, samples of 100 would probably prove adequate.

It is paradoxical that the better the job we are doing the larger the sample we must test. However, this factor can be offset by reducing the frequency of sampling, spreading the sample over a longer period of time, and other devices depending upon the individual situation.

Must Be Random Sample

One other point is important in selecting the sample. Not only should it be of sufficient size, it must also be a random sample. It must be selected in such a way as to cover all the billing clerks, methods, etc., but subject to this limitation it should be drawn at random without any bias. In starting a program it may be desirable, for a time, to take separate samples from the work of each billing clerk in order to establish whether there are significant differences among them.

How do we go about installing a statistical quality control program? We have already covered much of what needs to be done. Specifically, here are the important steps.

1. Explain the program to man-

agement and enlist their support. Get them to agree to allow the random chance errors in the portion of the work not included in the test samples to go out to customers. Show them that:

a. The number and amount of the random chance errors should be small.
b. Some errors will slip through even with a 100 per cent check.
c. The sampling and testing techniques will be so designed as to detect promptly assignable causes of error, eliminate them, and correct the errors before the bills go out.
d. The sampling program would be applied only to the large bulk of residential customers. Bills over a certain amount would be excluded from the sampling program and still checked 100 per cent.
e. Errors in favor of the company, if significant in amount, would be called to the company's attention by the customer. Loss of goodwill from this source would have to be assessed as a cost of the program.
f. Errors in favor of the customer would amount to far less than the savings in checking under the sampling program.
g. And last but not least, the clerical savings from eliminating a large volume of checking would be substantial.

2. Determine our average error rate over a period of a few weeks.

3. Using the formula in the appendix, calculate the control limits for random chance errors.

4. Set up a control chart and plot the number of errors each day on each batch. The larger the chart the better. Put it in a conspicuous place where all those concerned can see it. Develop interest in it. You may reduce your average error rate significantly through turning essentially boring work into something alive and important.

5. Analyze and record each error found and discuss it with the employee responsible. Concentrate on error prevention instead of merely error correction.

6. Whenever a sample shows an error rate outside or near the control limits, take immediate steps to find and eliminate a probable assignable cause of error and at the same time extend your check of the bills from which the sample was drawn before allowing them to go out.

The technical difficulties in installing this program are small, and the savings may amount to many thousands of dollars per year. The progressive accounting executive should certainly give it serious consideration.

APPENDIX

It can be shown mathematically that, when only random chance errors are present, the number of errors in a sample will fall within the range, $np' + 2\sigma$ and $np' - 2\sigma$, 95 per cent of the time. Here p' is the average error rate for the operation, n is the size of the sample, and σ is the standard deviation, given by the formula:

$$\sigma = \sqrt{np'(1 - p')}$$

Thus, if we take a sample of 5000 from an operation with an error rate of one error per 1000, we have:

$$n = 5000$$

$$p' = .001$$

and

$$\sigma = \sqrt{5000 \times .001 \times .999}$$

or

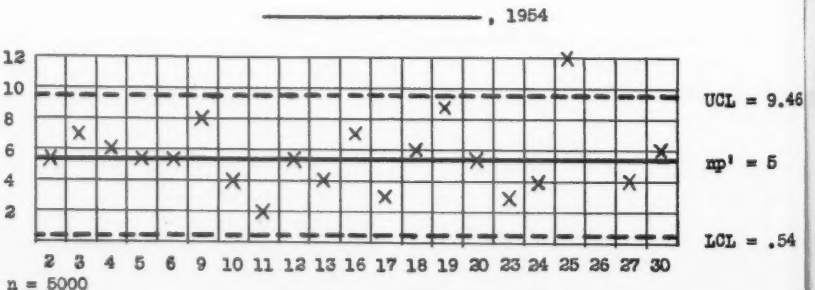
$$\sigma = \sqrt{4.995} = 2.23.$$

Our control limits would then be as follows:

Upper control limit (UCL) $= np' + 2\sigma$
$= 5000 \times .001 + 2 \times 2.23$
$= 5 + 4.46$
$= 9.46$

Lower control limit (LCL) $= np' - 2\sigma$
$= 5 - 4.46$
$= .54$

Practically, the lower control limit is of little value in the application we are considering. A monthly control chart using these limits would look somewhat as the one shown below. It can be seen that an assignable cause of error was presumably present on the 25th. An investigation would be made before this day's bills were released.



Monthly Control Chart

Specialty Selling

(*Continued from page* 158)

seek every prospect or customer? Would it not be possible for everyone of us to go home from Chicago and to get under way, in conjunction with our other local retail selling outlets, with the manufacturer, with the distributor, and with the contractor, a major campaign on sales training?

"After all, a national campaign is only an accumulation of the efforts of a large number of local units."

I leave the proposal with you. If you think well of it, find today's Merrill Skinner, Freeman Barnes, and Ernie Greenwood who, with others, 20 years ago, promptly and effectively planned, organized, and operated Better Light Better Sight. Put these men of today to work tomorrow. Enough time has been lost already.

I close with an almost verbatim quotation of the final paragraph of my June 7, 1933, paper.

"We have emerged from the past few years with character as the yardstick by which the public, by and large, will judge us—character of men, character of selling, character of service. These three things—involving, as they do, knowledge, intelligent planning, fair dealing, courageous action, and hard work—can bring us into a Promised Land with volume of kilowatthour sales so great . . . that we will look back on that which we called accomplishments in 1954 and wonder how we could then have been so ridiculously smug in our own self-satisfaction."

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